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MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

INQUIRY INTO THE ECONOMIC CONDITION AND THE STATE OF HEALTH AND NUTRITION OF THE FAMILIES OF THE SECONDARY SCHOOL TEACHERS OF BARODA

1954

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" The most important factor in the contemplated education reconstruction is the teacher—his personal qualities, his educational qualifications, his professional training and the place that he occupies in the school as well as in the community....

" Priority of consideration must therefore be given to the various problems connected with the improvement of their status. During our tour we were painfully impressed by the fact that the social status, the salaries and the general service conditions of teachers are far from satisfactory. In fact, our general impression is that on the whole their position to-day is even worse than it was in the past....

" We are convinced that, if the teacher's present mood of discontent and frustration are to be removed and education is to become a genuine nation-building activity, it is absolutely necessary to improve their status and conditions of service. "

Quoted from the report of the Secondary Education Commission 1953, Government of India, Ministry of Education, pages 155-56.

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

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FOREWORD

I congratulate Dr. J. D. Pathak and Dr. N. M. Bhatt for completing this "Inquiry into the Economic Condition and the State of Health and Nutrition of the Families of the Secondary School Teachers of Baroda" within so short a time. This enquiry though restricted to Baroda, will, I am sure be of general use in that, it will enable the authorities concerned if they desire, to take active steps in improving the general condition of the Secondary School Teachers.

The enquiry reveals several things. It shows that there is a large number of teachers who are poorly paid; and that they are the teachers from this low income group who are found to be living beyond their means and consequently running into debts. Secondly, the enquiry shows that the period of service put in by many teachers is not long enough for them to earn their pension or provident fund, thus leaving them without any protection against old age or any other disability. The economic condition on the whole, therefore, is not satisfactory, according to the findings of the enquiry.

With regard to the health conditions, the enquiry has gone into the conditions in which the teachers live, *i. e.* their houses, their habits of taking regular exercise and the diet they take. Its findings are that the housing conditions are not ideal; that the teachers take no regular exercise; and that their food habits are far from satisfactory. With regard to housing, the conditions are bad for all people and need a good deal of improvement. It is for the municipalities and civic bodies to go into the question and see that suitable houses with such amenities as are absolutely necessary are provided for. It is, however, upto the teachers themselves to understand the value of taking regular exercise and cultivating better food habits in order to maintain good health. As the enquiry points out:

"With improvement in income, more protective foods are taken, though, it cannot be said that the money is always employed in the best way. There is scope for discretion regarding investment in more nourishing foods within the same means but this can only be possible by better knowledge regarding the nutritive values of foods."

While, therefore, one hopes that the state will consider the improvement in their economic condition, the teachers themselves will take steps to improve their health by learning what is good for their body by way of regular exercise and proper food habits. If this enquiry will make the teachers at least conscious of their duty to themselves, it will have fulfilled its purpose.

Hansa Mehta.

Baroda, 1-11-54

Vice-Chancellor,
M. S. University of Baroda.

INTRODUCTION

On the occasion of the Second Gujarat Research Workers' Conference held in January 1953, at Ahmedabad, it was resolved to survey the status of health and nutrition of middle classes in different areas of Gujarat. This was a part of the National Biometric Plan proposed by Shri P. G. Shah, President of the Gujarat Research Society. Health and nutrition surveys carried out from time to time would point out how the health of the people is progressing. It would, at the same time, indicate what measures could be adopted to improve their health. Some data about health and nutrition in the middle class families of Gujaratis in Bombay were collected by the Gujarat Research Society in 1941 and 1949 and it was felt that a comparison of these data with those of other towns would be of great interest.

Secondary school teachers form a very important and intelligent section of our middle classes. A survey of the economic, health and nutrition conditions of their families would be of great value. We, therefore, thought of a survey of the health, nutrition and economic conditions of the secondary school teachers of Baroda. Our purpose was, not only to execute partly the plan of the Gujarat Research Workers' Conference, but also to help, in our own humble way, the cause of the secondary school teachers.

We were very lucky to get for this scheme the kind support of Shrimati Hansaben Mehta, Vice-Chancellor of the Maharaja Sayajirao University of Baroda, whose keen interest and study of the problems of secondary education is well known and of Dr. Jivraj Mehta, Minister for Finance, Bombay State, who has been deeply interested in the problems of health and nutrition of the people. Shrimati Hansaben Mehta has further taken the trouble to write the Foreword. We cannot adequately express our feelings of gratitude and thankfulness to them for their keen interest in our work. We take this opportunity of thanking the authorities of the University for sponsoring the scheme.

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PART I

BARODA AND ITS SCHOOLS, STUDENTS AND TEACHERS

BARODA

Baroda is a small city situated in Gujarat in the State of Bombay. Its position on the world map is given approximately by 22° N., 73° E. It has a mild winter, a hot summer during which the mercury in the thermometer often rises higher than 110°F. and an average rainfall of about 30 inches. Its climate is generally dry except in the monsoon season and hot except in the short winter of three to four months.

Temperatures in Baroda in 1950

	May-Summer	*December-Winter*
Mean of the month	92.3	67.7
Departure from normal	+1.1	-1.6
Mean maximum	105.5	85.2
Absolute maximum	111	94
Mean Minimum	79	50.2
Absolute minimum	72	40

Baroda was the capital of the former Baroda State which was ruled by the Gaekwar family for nearly two centuries and which was merged in the State of Bombay in 1949. Maharaja Sayajirao III, who reigned from 1875 to 1939 was its most distinguished ruler who was always far ahead of his times. He turned the Baroda state into a very progressive state with an efficient administration, free and compulsory primary education, benevolent social legislation, libraries, hospitals, schools and colleges, beautiful buildings etc. He developed the old small Baroda town having dark narrow lanes and old houses into a modern city with wide asphalt roads, waterworks, underground drainage, electricity, an efficient municipality, gardens and other modern amenities.

For the last fifty years and more, Baroda has enjoyed good health, very low maternal mortality and low death-rate. Even though it is, now, only the district headquarter of Baroda District, it continues to be a clean and beautiful city with gardens, good sanitation, wide roads, good buildings, schools, hospitals and a University named after the most illustrious of its rulers—Maharaja Sayajirao. During the last fifteen years its population has increased by almost 100% and it has now a population of nearly 211 thousands. The greater part of the population is Gujarati, but it has a good number of Maharashtrians about 20% of the total population and about 10,000 Sindhis who came as refugees after the Partition.

Though there are a few textile mills, two big pharmaceutical concerns and other small industries in Baroda, it cannot be called an industrial centre. It is an important educational and cultural centre of Gujarat. It has produced well known literary persons, learned teachers, professors and students who have distinguished themselves in life. Baroda teachers have left best traditions. This was partly due to the various amenities that the teachers in Baroda enjoyed. The life was easy and comfortable within the pay, which comparatively looking to the index of living at present was very adequate. It is in the background of the historical educational and cultural traditions of Baroda that the present secondary teacher of Baroda is to be judged.

HISTORY OF SECONDARY EDUCATION IN BARODA

The first secondary school was started in 1891 A.D. by the Government of Baroda and was called the Baroda High School. It flourished well with many Gujarati and Marathi students studying in it. It had brilliant teachers, like Shri Mancherji Wadia a born teacher with great love for students, under whom it attained very good reputation. It was the premier Government school in Baroda State. After the merger of the Baroda State into the State of Bombay in 1949, it was decided to turn the school into a Commerce High School but now it has been decided to close it gradually in a couple of years.

In 1904, the Government of Baroda started a separate high school for girls, known as the Maharani High School for girls. This school also flourished well. In 1949, this school together with its buildings and equipment was handed over by the Government of Bombay to Baroda Kelavani Trust who are now managing it. Situated on the bank of Sursagar in its own buildings with a nice compound, this School has at present a strength of 1000 girls.

In 1939, the Government of Baroda started a Technical High School in the Kala-Bhavan Technical Institute in Baroda. After the merger, together with the Kala-Bhavan, it was handed over to the Maharaja Sayajirao University of Baroda and now is a part of the Faculty of Technology (including Engineering) under which it has now made good progress.

With the growth of primary and secondary education, christian missionaries and private individuals came in the field of secondary education. The Methodist Boys' High School was started in 1890 as a primary school. Later on, English was introduced and it became a High School in 1919. It was a co-educational institution till 1914, when it was separated into boys and girls schools which later on became the Hill Memorial High School for boys and the Webb Memorial High School for girls. These Schools are under the management of the Board of Education of Methodist Church of Southern Asia.

The other christian missionary educational institution in Baroda is the Rosary High School with its Convent of Jesus and Mary Girls School. It was started in 1935. It has a beautiful building away from the crowded city area, a hostel for students and good play-ground. Under the care of Rev. Father Palomera, it has now become a famous school.

Going back again to the beginning of the present century, in 1905 A. D. a school was started as a private venture by Shri Hiralal Majmudar of Petlad. It was purchased from him by a philanthropist Shri Zaveri who handed it over to a Kelavani Trust in 1906. Since then, this "Shree Sayaji High School" is managed by a Board of Trustees. The school owes its development to its first principal, the late Shri H. V. Shroff, a great scholar and a brilliant teacher, who died in harness in 1930. Situated in the centre of old Baroda, the school has now its own building, a separate high school for girls and a total strength of about 1400 students.

A school was started in 1911 by Shri Bhausaheb Gokhale which later on under the management of Baroda Education Society developed into the present Maharani Chimnabai High School. It has a nice building of its own in Salatwada and has now a strength of 500 students.

The Model High School was first started in 1932 by a Mysorian teacher Shri D. N. Murti from whom it was taken over in 1934 by Shri H. A. Mehta, one of the present trustees. He developed the school and now there are two high schools, the Jayshree Model High School and the J. M. Junior High School. It was a proprietory institution but in 1954, the Jayshree Education Trust was formed and the schools were handed over to the Trust. The schools are situated in Dandia Bazar in hired buildings and have a strength of 1350 students.

In 1933, the New Era High School was started by Shri N. B. Katpitia, who was then the Headmaster of the Methodist Boys High

School, with Shri J. M. Mehta and some of his colleagues. In 1935, they started the New Era Girls High School and in 1936 they started the Pratap High School in Sayaji Ganj. The schools are sitting in good though hired buildings and have the total strength of 1750 students. In 1938, the New Era Trust was formed and the institutions were handed over to the Trust.

Shri Nanalal N. Shah, the Principal of the Sayaji High School, started with Shri M. S. Joshi, Shri C. G. Bhatt and other colleagues in 1934 a new high school and called it the H. V. Shroff Memorial High School. Under the care of Shri Nanalal Shah it rapidly developed into a big high school and they started another high school in Wadi area. The two schools are now managed by Memorial Education Trust and have a strength of 1000 students.

As a result of the rapid increase in the population of Baroda, the need for more schools was felt. The Sharda Mandir High School, which is situated near Jubilee Baug, was started as a school in 1943 and it became a full high school in 1946. It is now managed by Shikshan Prasarak Mandal which is registered under Bombay Trust Act and has a strength of 270 students. The Bharati Vidyalaya High School, which was started as a school in 1948, came into existence in 1950 and it has now a strength of 420 students. In 1942, the Muslim Education Society started their high school. It is a small high school of 200 students at present. It admits students of all castes and creeds.

The large number of Sindhi refugees who came to Baroda in the wake of the Partition, felt the necessity of a school of their own and in December 1947, Shri Ladharam, a great educationist and an able organizer, started the Sindhi Hindu High School. Shri Ladharam unfortunately died in December 1953 and in his memory the school is now called Ladharam Sindhi Hindu High School. It has a strength of about 600 students.

The University Experimental School was started by the Maharaja Sayajirao University of Baroda as a school in March 1951 and was developed into a full high school in June 1953. It is intended to be the laboratory for demonstrations and experiments in Education and Psychology for the Faculty of Education and Psychology of the University. Situated in the building formerly occupied by the Baroda High School near the station, it has beautiful location, good well-equipped building and a big play-ground. Under the able guidance of Prof. T. K. N. Menon, the Dean of the Faculty of Education and Psychology of the University and the enthusiastic supervision of Shri K. S. Yajnik, its headmaster, the school has made rapid progress in a couple of years.

HIGH SCHOOLS IN BARODA IN 1953-54

	Name of the High School	*No. of students in 1953-54.*
1	Baroda High School	32
2	Bharati Vidyalaya	421
3	Hill Memorial	237
4	H. V. Shroff Memorial	706
5	Jayshree Model	487
6	Jayshree Model Junior	879
7	Kala-Bhavan Technical	152
8	Ladharam Sindhi Hindu	593
9	Maharani Girls'	958
10	Maharani Chimnabai	474
11	Muslim Education Society's	192
12	New Era Boys'	733
13	New Era Girls'	218
14	Pratap	801
15	Rosary	353
16	Sayaji	901
17	Sayaji Girls'	462
18	Sharda Mandir	270
19	University Experimental	195
20	Wadi	270
21	Webb Memorial	174
	Total	9508

NUMBER OF STUDENTS AND TEACHERS.

The total number of students studying in these 21 high schools in the year 1953-54 was 9508, about 4.5% of the population of Baroda. The distribution of these students according to their sex and classes was as follows :—

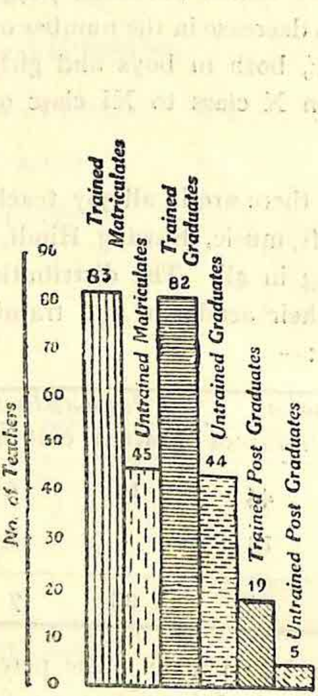
	Classes							
Sex	V	VI	VII	VIII	IX	X	XI	Total
Boys	471	538	807	1358	1514	1159	1005	6852
Girls	153	224	313	616	606	454	290	2656
Total	624	762	1120	1974	2120	1613	1295	9508

Due to the abolition of English as a subject in the lower classes, a good number of students attend V, VI and VII classes in primary schools and this fact accounts for the sudden increase in the number of students in VIII Class. Among these secondary school students, 72% are boys and 28% are girls. There is a sudden decrease in the number of students from IX class to X class of about 25% both in boys and girls. Again there is a decrease in the number from X class to XI class of 13% in boys and 36%in girls.

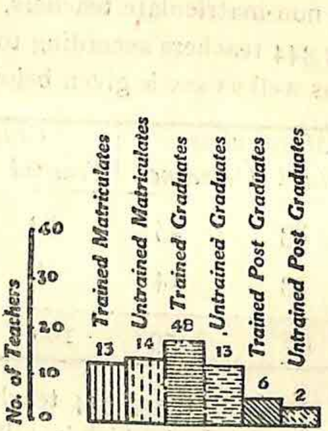
To teach all these 9508 students, there are in all 387 teachers. This number includes physical training, craft, music, drawing, Hindi, part-time and some non-matriculate teachers, 43 in all. The distribution of the remaining 344 teachers according to their academic and training qualifications as well as sex is given below :—

Sex	*Matriculates*		*Graduates.*		*Post-Graduates*		*Total*
	Trained	*Untrained*	*Trained*	*Untrained*	*Trained*	*Untrained*	
Male	83	45	82	44	19	5	278
Female	13	14	18	13	6	2	66
Total	96	59	100	57	25	7	344

Only 19% of these 344 teachers are female. The percentage of trained teachers is 64% which is quite good. The percentage of untrained teachers in the three categories of Matriculates, Graduates and Post-Graduates are 38%, 36% and 22% respectively. The percentage of untrained teachers in female matriculates is much greater than that in female graduates, the two percentages being 52% and 42%. The percentage of untrained teachers in female teachers is greater than that in male teachers, the two percentages being 44% and 34%.



MALE TEACHERS



FEMALE TEACHERS

PART II

ECONOMIC CONDITION

ANNUAL SALARY AND LENGTH OF SERVICE

Minimum grades of basic salary for Secondary School teachers were laid down in a scheme known as Ghate-Parulekar Scheme and they are enforced by the Education Department of the Government of Bombay in all the schools recognized by them. The basic grades laid down in the scheme are as follows :—

(1)	Untrained Matriculate	50-$\frac{3}{2}$-56	
(2)	Trained Matriculate	56-2-80	E.B.-4-120
(3)	Untrained Graduate	70-2-74	
(4)	Trained Graduate	74-4-114	E.B.-4-130-6-160
(5)	Graduate with B.T. Qualification.	80-5-130	E.B.-6-160-8-200

Special increments are provided in the scheme for higher attainments *e.g.* a first class, a master's degree etc. There is compulsory Provident Fund to which the teacher contributes 6.25% of his salary and the school aided by the Government contributes an equal amount. The schools which provide better grades than these grades are few. These grades give an idea as to the annual salaries of the teachers. However to get a very accurate picture, the present actual annual salaries of the teachers are taken from the data supplied by the headmasters and they are correlated with the length of the service of teachers.

The annual salaries given in the following table include dearness and other allowances but do not include any other type of income. This table is prepared from the information kindly supplied by the Heads of the Schools. For the purpose of the relation between annual salary and length of service, the data regarding 308 teachers have been analysed. It would be interesting to compare these two types of quantities between male and female teachers, between trained and untrained teachers and between matriculates and graduates. The average annual salary, the average length of service, the correlation between the two and the average annual increase in the salary are calculated for the various categories of teachers. The following table gives this information :—

Category	Average Annual Salary in Rs.	Average length of Service in years	Correlation	Average annual increase in Rs.	No. of teachers
Male Teachers					
Matriculate untrained	1392	8.9	0.69	22	39
Matriculate trained	1544	13.6	0.60	22	77
Graduate untrained	1889	9.1	0.89	55	37
Graduate trained	2429	14.5	0.62	52	79
Post-Graduate trained and untrained	2670	14.3	0.50	52	24
Average	1949	12.6	—	—	256
Female Teachers					
Matriculate untrained	1272	6.4	0.52	11	14
Matriculate trained	1589	12.8	0.98	44	8
Graduate untrained	1482	2.3	0.09	4	8
Graduate trained	1952	7.9	0.56	55	14
Post-Graduate trained and untrained	2075	4.9	0.73	79	8
Average	1660	6.9	—	—	52

The numbers of female teachers in the different categories and the averages and other constants derived from them cannot be considered to be reliable. In Female Graduate Untrained teachers, most of them had only one year of service; still the difference in their salaries was considerable. This accounts for the low correlation and low average annual salary in that group. The higher values of the average annual salaries of the male teachers are probably due to their greater length of service and not due to any discrimination against female teachers. With better academic qualifications, the annual salary increases. Trained teachers have a greater average length of service and the average length of service of male trained teachers in the different categories of matriculates, graduates and post-graduates is almost the same, equal to about 14 years, which is good. The increase in the average annual salary of the trained teacher over that of the untrained teacher may be partly due to the increase in the average length of service and partly due to better salary being given to trained teachers. There is partially high correlation between the annual salary and length of service, but it should be a little higher. Four bivariate tables of annual salary and length of service which give detailed information about the actual state of affairs are appended at the end. As annual salaries above Rs. 4000 are exceptions rather than rule, annual salaries above Rs. 4000 have been considered as equal to Rs. 4000 in these four grouped tables. The average length of service of a female teacher is much less than that of a male teacher.

INCOME FROM TUITIONS AND EXAMINATIONS

A source of income for secondary teachers is private tuitions, S.S.C. examinerships etc. Out of 185 teachers who filled up the form A, 70 teachers stated that they had no income from this type of source. It is difficult to say how far the figures given by the teachers for this item are correct. There are a few cases in which the teachers draw good income from examinations. There are also cases in which the teachers engage many more tuitions than the stipulated number allowed to them by rules. It should be remembered, however, that a very small percentage of seccondary teachers is able to secure S.S.C. examinership and also that the tuition season is only a few months before examination. There are not many families in Baroda who will pay well for private tuition. Leaving out the seventy teachers who have stated their income from this source to be nothing, one may get probably a fairly accurate picture. A bivariate table of the annual salary and the annual tuition as well as examination income of 185 teachers gives the information shown in the table below.

Annual Tuition & examination Income	*Annual Salary*								*Total*
	-1200	*-1600*	*-2000*	*-2400*	*-2800*	*-3200*	*-3600*	*-4000*	
0	10	28	12	10	2	1	3	4	70
-100	—	10	—	—	—	—	—	—	10
-200	1	12	10	1	1	2	—	1	28
-300	—	21	7	9	1	1	—	2	41
-400	—	3	3	1	—	1	—	1	9
-500	1	5	2	3	1	—	—	1	13
-600	—	2	1	2	1	1	—	—	7
-700 and above.	1	—	1	3	1	1	—	—	7
Total	13	81	36	29	7	7	3	9	185

This table gives us the distribution of the annual salary as well as of the annual tuition and examination income. Excluding the data of 70 teachers who stated their income from this source to be nil, the data of the remaining 115 teachers have been analysed. It is found that the average annual income from tuition and examination is Rs. 281, as compared to the average annual salary of Rs. 1845, with a standard deviation of Rs. 160. The correlation between the two is found to be 0.23, showing that there is very little relation between them. It has been noticed that the other factors included in our survey, *e. g.* the size of the teacher's family, his age, etc., have not much relation with the tuition and examination income. It is likely that this type of income depends on other factors like the teacher's subject, his individual personality etc. Due to the exclusion of the 70 teachers who stated to have no income from tuitions, the figure of the average tuition and examination income is evidently an over-estimation. One may conclude therefore that the correct average is not likely to be greater than Rs. 300 per annum on the whole.

ANNUAL INCOME OF THE TEACHER AND HIS AGE

An attempt is made here to analyse and find the relation between the annual income of the teacher, which includes his salary and tuition and examination income, and his age. The following bivariate table gives the summary of these data contained in the form A filled in by 185 teachers, seven of whom did not state their age :—

Age in years	*Annual income of the teacher*								Total
	-1200	-1600	-2000	-2400	-2800	-3200	-3600	-4000	
-20	–	1	–	–	–	–	–	–	1
-25	3	13	3	–	–	–	–	–	19
-30	1	18	10	6	5	–	–	–	40
-35	2	6	6	5	3	2	2	1	27
-40	1	4	8	8	2	2	1	–	26
-45	1	–	11	4	3	2	3	3	27
-50	–	2	6	4	2	4	2	1	21
-55 and above	–	1	3	7	1	1	1	3	17
Total	8	45	47	34	16	11	9	8	178

This table gives the distribution of the annual income of the teacher from his profession and his age. From statistical calculations, it is found that (i) the average age is 36.2 years with a standard deviation of 9.4 years, (ii) the average annual income of the teacher is Rs. 2056 with a standard deviation of Rs. 700, (iii) the coefficient of correlation between the two is 0.66 and (iv) the linear regression coefficient of the regression of the annual income on age, which is the average increase in the income per unit increase in age, is Rs. 35 per year. An approximate rectangular distribution with a high average age of 36 years is a noteworthy feature of the distribution of age. It appears that there is very little tendency to leave the teacher's profession after the age of 30 years. The annual incomes of 80% of the teachers lie within the range of Rs. 1200 to Rs. 2800. The variation in the annual income with increase in age is small, only to the extent of Rs. 35 per year. This result has reference to the variation in the present group of teachers only and it cannot be used to forecast the income of a teacher in future or to find his income in the past. The correlation between the annual income and age is 0.66 which is high but not sufficiently high.

The income of the teacher from other sources excluding tuition and examination may now be considered. The following table gives the distribution :—

Other Income (Annual)

No other income	*-100*	*-200*	*-300*	*-400*	*-500*	*-600*	*-700*	*-800*	*-900*	*-1000*	*-1100 & above*
128	11	14	13	1	7	3	1	–	1	2	4
										Total..	185

The average comes out to be about Rs. 100. It means that the average teacher has not much income from sources other than his salary and tuition.

ANNUAL INCOME OF THE TEACHER'S FAMILY AND ITS SIZE

The distribution of the total annual income of the teacher's family, the distribution of the number of persons in the family and the relation between the two will be considered now. The following bivariate table gives these two distributions and it can be analysed statistically to find the relation between the annual income of the teacher's family and its size.

Size of the Family	*Total Annual Income of the Family*								*Total*
	-1200	*-1600*	*-2000*	*-2400*	*-2800*	*-3200*	*-3600*	*-4000*	
1	2	11	2	1	1	—	—	1	18
2	—	1	5	4	2	3	1	—	16
3	1	4	1	3	2	1	2	3	17
4		5	9	7	2	1	5	2	31
5	—	3	7	6	3	3	4	5	31
6	—	4	6	5	3	3	2	3	26
7	—	2	3	5	2	1	2	3	18
8	—	—	2	—	1	2	—	2	7
9	—	—	1	1	1	2	1	2	8
10	—	—	—	1	3	2	1	2	9
Total	3	30	36	33	20	18	18	23	181

The average annual income of the teacher's family works out to be Rs. 2414 with a standard deviation of Rs. 816. It can be seen that about

55% of the teachers' families have their total annual incomes between Rs. 1200 and Rs. 2400 and the remaining 45% of families have annual income above Rs. 2400. The distribution is positively skew, the mean being greater than the median or the mode.

The average size of the teacher's family is found to be 4.9 persons with a standard deviation of 2.4. About 19% of the families are one or two person families and 13% of the families have the number of persons in the family equal to 8 or greater. The remaining families, two-thirds of the total number of families, have the size of the family of 3 to 7 persons. The family includes parents, brothers, sisters and other dependants and hence the size of the teacher's family cannot be considered to be very large.

To find the relation between the total annual income of the teacher's family and the size of the family, the coefficient of correlation between these two factors and a regression coefficient which gives the average increase in the annual income per unit increase in the size of the family have been calculated. The correlation coefficient is found to be 0.34, which is rather small. If these two factors were completely independent of each other, this correlation would have been equal to zero or nearly zero. The value we obtained namely 0.34 is significantly different from zero and it cannot arise merely due to random variation or chance in sampling. But its value is small. It may be concluded that the annual income has not much effect on the size of the family in a good majority of families. The average increase in the annual income per unit increase in the size of the family, which is found to be Rs. 115, has therefore not much importance. The other regression coefficient giving the average increase in the number of rooms per unit increase in the annual income is found to be 0.001.

In this section the annual income of all the earning members of the family is considered. In the previous section it was found that the annual income of the teacher is Rs. 2056 plus other income of Rs. 100 while in this section the income of the family is found to be Rs. 2414. These figures give a rough idea as to the contribution of other earning members of the family to the income. The difference is not much and it may be concluded that very often the burden of the whole family is on the teacher only, in very few cases there being other earning members. This is borne out by the following table of the number of earning members and the number of non-earning dependants in the teacher's family :—

No. of Earning Members	*No. of non-earning dependants*											
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*Total*
1	17	16	15	24	24	21	16	5	4	3	—	145
2	2	2	4	8	6	4	2	4	2	1	1	36
3	1	—	—	—	1	—	—	2	—	—	—	4
Total	20	18	19	32	31	25	18	11	6	4	1	185

With the average income of Rs. 2414 and the average number of persons in the family as 4.9, the per capita annual income works out to be Rs. 490 approximately. It can be seen from the first table of this section that the number of families whose per capita annual income is less than Rs. 400 is about 50, *i.e.* about 27%.

ANNUAL INCOME OF THE TEACHER'S FAMILY AND THE NUMBER OF ROOMS IN THE HOUSE

It would be interesting to find the number of rooms in the house in which the teacher's family lives. It would be more interesting to know whether this factor of the number of rooms in the house has any relation with the total annual income of the family. For this purpose a bivariate table giving the joint distribution of the total annual income of the teacher's family and the number of rooms in his house is prepared. The table is given below:—

Number of Rooms	*Total Annual Income of the Family*								*Total*
	-1200	*-1600*	*-2000*	*-2400*	*-2800*	*-3200*	*-3600*	*-4000*	
1	2	7	2	1	1	—	—	—	13
2	—	7	3	10	4	2	4	3	33
3	1	7	20	16	6	6	7	3	66
4	—	5	7	2	3	4	1	4	26
5	—	—	2	1	2	1	4	3	13
6	—	1	1	2	2	3	—	3	12
7	—	—	1	—	1	1	1	4	8
8	—	3	—	1	1	—	—	—	5
9	—	—	—	—	—	—	1	2	3
10	—	—	—	—	—	1	—	1	2
Total	3	30	36	33	20	18	18	23	181

It is found that the average number of rooms in the teacher's family is 3.6 with a standard deviation of 1.9. About 7% of the houses are one-room tenements. In about 24% of the houses, the number of rooms is five or greater. In the remaining houses, which constitute roughly two-thirds of the total number of houses, the number of rooms is from 2 to 4.

The coefficient of correlation between these two factors namely the total annual income of the family and the number of rooms in the house in which the family lives is found to be 0.35. As in the previous case of the relation between the total annual income and the size of the family, the correlation in this case also is rather small. The two factors are not completely independent, but it appears that the total annual income has not much effect on the number of rooms in the house. The regression coefficient of the income on rooms, which gives the average increase in the annual income per unit increase in the number of rooms and which is found to be Rs. 150, has therefore not much importance. The other regression coefficient giving the average increase in the size of the family per unit increase in the income is 0.0008.

SIZE OF THE FAMILY AND THE NUMBER OF ROOMS

The following table shows the relation between the number of rooms in the house of the teacher and the number of persons in his family :—

No. of Rooms	*No. of persons in the Family*										*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	
1	10	1	2	–	–	–	–	–	–	–	13
2	4	2	6	8	6	6	–	–	–	1	33
3	4	8	1	11	16	10	9	2	4	1	66
4	–	4	5	5	3	3	4	1	–	1	26
5	–	–	1	5	3	2	1	1	–	–	13
6	–	1	1	1	–	1	3	–	2	3	12
7	–	–	–	–	2	2	1	2	–	1	8
8	–	–	1	1	–	1	–	–	–	2	5
9	–	–	–	–	1	–	–	1	1	–	3
10	–	–	–	–	–	1	–	–	1	–	2
Total	18	16	17	31	31	26	18	7	8	9	181

The coefficient of correlation between the number of rooms and the size of the family is found from the above table to be 0.46, which though not very great is rather high. It appears that the number of rooms in the house depends more on the size of the family than on the income. The regression coefficient in the linear regression of the number of rooms on the size of the family is found to be 0.37, giving the average increase in the number of rooms per unit increase in the size of the family as 0.37. The regression coefficient in the linear regression of the size of the family on the number of rooms is found to be 0.58, giving the average increase in the size of the family per unit increase in the number of rooms as 0.58.

The families are divided into five groups according to their per capita per month incomes: group I Rs. 25 and below, group II Rs. 26 to Rs. 50, group III Rs. 51 to Rs. 75, group IV Rs. 76 to Rs. 100 and group V above Rs. 100. The variations in the size of the family, the number of rooms and the correlation between them in these income groups are shown in the following table :—

Groups	*Average size of the Family*	*Average No. of rooms*	*Correlation*	*Increase in No. of rooms per unit increase in family*	*No. of families in the group*
I	7.7	3.9	0.53	0.63	27
II	5.4	3.9	0.52	0.47	86
III	3.9	3.9	0.40	0.37	28
IV	3.7	4.6	0.91	0.61	12
V	1.6	1.8	0.77	0.55	28
For all groups	4.9	3.6	0.46	0.37	181

The table on page 18 shows the relation between the number of rooms and the size of the family, only for all the groups combined and not separately for each group. Only the results are given for each group separately in the above table. Group IV is a small one and in group V there are several families with only one person occupying one-room houses. The results of groups fourth and fifth, therefore, may not be considered representative. The average number of rooms equal to 3½ for an average family of five persons may be considered to be adequate in these days of scarcity of houses, provided the houses are of good design, well-ventilated and equipped with sanitary fittings, electric light and good water-supply. This is generally not the case in Baroda and the condition of the houses of the teachers can be considered to be just satisfactory only from the point of view of space. The partially high correlation between the number of rooms and the number of persons, of the order of 0.5, shows that the number of persons in the family is a factor, but not the only factor, affecting the number of rooms.

HOUSING CONDITION

In the previous section the details of the number of rooms in the house of the teacher have been presented and it was found that the average number of rooms is $3\frac{1}{2}$ for the average size of the family which is 5. A few more details about the houses are given in the table below :—

	House		*Electricity*		*Water-supply*		*Lavatory*	
Group	*Own*	*Hired*	*Yes*	*No*	*Good*	*Bad*	*Flush*	*Not-Flush*
I	10	18	18	10	19	9	14	14
II	27	62	67	22	72	17	62	27
III	5	23	24	4	25	3	21	7
IV	3	9	12	—	9	3	10	2
V	4	24	22	6	25	3	16	12
Total	49	136	143	42	150	35	123	62

About one-fourth of these 185 teachers have their own house. Most of these houses are rather old, and were purchased generally before the war when they were cheap. In hired houses, the conditions in some cases are not good in Baroda. The water-supply in some areas is not adequate and inspite of the efforts of the Municipality, several lavatories are of the old type without flush arrangement. In many cases the water-supply and the lavatory are not independent for each family but shared between a number of families. The sanitary conditions are generally satisfactory but the ventilation is very often not good.

Let the number of houses with electricity be denoted by A and those without electricity by α, the number of houses with adequate water supply by B and those without adequate water supply by β, the number of houses with flush lavatory by C and those without flush lavatory by γ. Then the houses can be divided into various categories in each of the income groups as follows :—

Income Group	Category								Total
	ABC	αBC	$A\beta C$	$AB\Upsilon$	$\alpha\beta C$	$\alpha B\Upsilon$	$A\beta\Upsilon$	$\alpha\beta\Upsilon$	
I	6	1	5	7	2	5	—	2	28
II	39	11	11	15	1	7	2	3	89
III	17	2	2	4	—	2	1	—	28
IV	7	—	3	2	—	—	—	—	12
V	13	—	1	8	2	4	—	—	28
Total	82	14	22	36	5	18	3	5	185

It can be seen that (i) the number of houses without any of these three defects is 82 *i.e.* 44 %, (ii) the number of houses with one defect only is $14 + 22 + 36 = 72$ *i.e.* 39 %, (iii) the number of houses with two defects is $5 + 18 + 3 = 26$ *i.e.* 14 % and (iv) the number of houses with all the three defects is 5 *i.e.* 3 % only.

PER CAPITA PER MONTH INCOME GROUPS

For the purpose of judging the condition of health and nutrition, it is necessary to take into account the per capita per month income of the teacher's family. For this purpose, the 185 families are divided into five income groups according to the per capita per month income of the family, the grouping intervals being group I Rs. 25 and below, group II Rs. 26 to Rs. 50, group III Rs. 51 to Rs. 75, group IV Rs. 76 to Rs. 100 and group V above Rs. 100. The persons who have been medically examined come from these 185 families and it is necessary to have detailed information about the community, sex etc. of the persons in these families. It should be noted that the average per capita per month incomes in these five groups are Rs. 22, Rs. 35, Rs. 62, Rs. 85 and Rs. 135. The detailed tables for each group will be found at the end. A consolidated table is given on the next page.

The number of families in the communities of Sindhi, Muslim, Christian and Parsi is too small to allow any generalization. Gujarati and Maharashtrian Hindu families form 88% of the families and 91% of the total number of persons. Nearly one half of the families, 48% exactly, are in group II and nearly 80% of the families are in the first three income groups. Though the average size of the family is about 5 persons, variation in the size of the family from group to group can be seen in the detailed tables given in the end. It is found that the average sizes of the family in the five income

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Table of Distribution of Families and the Number of Persons according to Communities and Groups

Community	*No. of Families*						*No. of Persons*		
	I	*II*	*III*	*IV*	*V*	*Total*	*Male*	*Female*	*Total*
Gujarati Hindu	18	62	24	7	16	127	335	295	630
Maharashtrian Hindu	9	17	2	3	5	36	80	102	182
Sindhi	–	5	–	–	1	6	17	15	32
Muslim	1	1	–	–	2	4	6	7	13
Christian	–	3	2	1	2	8	12	15	27
Parsi	–	1	–	1	2	4	2	6	8
Total	28	89	28	12	28	185	452	440	892

groups are 7.6, 5.4, 3.9, 3.6 and 1.6 respectively. In Gujarati Hindu families, these figures are 8.2, 5.3, 4.0, 4.6 and 1.8 respectively. It may be concluded, therefore, that the higher or lower per capita income on the whole is more due to the larger or smaller size of the family than to higher or lower total income.

Another important fact, which can be seen in the detailed tables, is the greater proportion of women in Maharashtrian families than in Gujarati families.

It should also be mentioned that a good number of families in the fourth and the fifth group are one or two member families.

DISTRIBUTION OF INCOME IN DIFFERENT ITEMS OF EXPENDITURE

The amounts of the monthly expenditure on Food, Fuel, House Rent, Clothes, Recreation, Travelling and Transport, Education, Medicine and Miscellaneous items were inquired. Dividing these amounts by the total monthly income of the family and converting them to percentages of the total income, the averages for each item for each income group were calculated. The results for different income groups are given below :—

Items	*Group I*	*Group II*	*Group III*	*Group IV*	*Group V*
Food	53	50	39	29	32
Fuel	9	7	6	5	5
Rent	12	12	12	10	12
Clothes	13	13	9	9	9
Recreation	3	3	3	3	5
Travelling	4	4	4	4	7
Education	9	9	9	6	8
Medicine	5	5	4	4	4
Miscellaneons	12	8	8	9	12
Total	120	111	94	79	94

The results are given in whole percentages only and this approximation hides from the view small variations. The amounts spent after these items as given by the teachers can be only approximations and there may be a tendency to exaggerate. It can be seen that the total in the first two groups is more than 100%, showing that some families in the first two income groups spend more than what they can afford and hence must be in debt. The results given above with their magnitudes may not be accepted without reservation. But certain broad facts definitely emerge from these results. The families in the first two income groups, in which the per capita per month income is less than Rs. 50, must be spending about 50% of their income after food, as the health and nutrition condition of the families of teachers was found to be not so bad as imagined. Accepting this figure of 50% as the percentage of income spent after food, there is not much left for other expenses. A teacher has to stay in a tolerably good house, clothe well, educate his children and maintain some decent standard of living. It is very likely that some teachers are compelled to live beyond their means and incur debts. The position regarding debt obtained from the questionnaire directly is given in the following table :

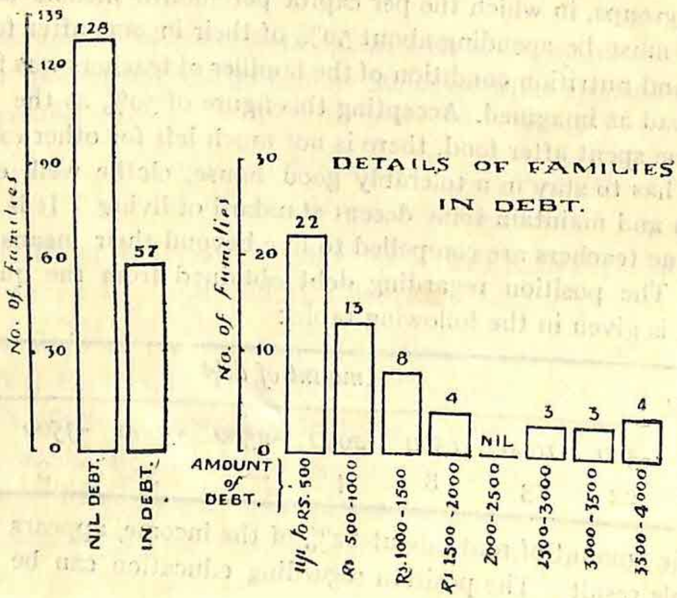
No debt at all	*Amount of debt*								*Total*
	-500	*-1000*	*-1500*	*-2000*	*-2500*	*-3000*	*-3500*	*-4000*	
No. 128	22	13	8	4	—	3	3	4	185

The amount of rent, about 12% of the income, appears to be quite a reliable result. The position regarding education can be understood from the following table of the numbers of school-going and college-going children in various income groups :—

Group	*Primary*		*High-School going*		*College-going*		*Total*
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	
I	18	20	12	13	8	1	72
II	23	35	20	17	9	2	106
III	4	4	9	4	9	—	30
IV	1	2	1	1	2	—	7
V	1	—	1	—	1	—	3
Total	47	61	43	35	29	3	218

SAVINGS AND INVESTMENT

About 50 teachers out of 185 teachers showed saving. Twenty of them had a saving of less than Rs. 1000 and ten of them had a saving of more than Rs. 5000. The saving was generally invested in Post Office and National Savings Certificates. Provident Fund is now compulsory. Only the old Baroda State servants in a few cases will be eligible for pension. Generally there is no adequate provision for old age.



SUMMARY

1. There are 21 high schools in Baroda in which about 9500 students are studying. Leaving out 43 teachers who are craft, drawing and similar types of teachers, there are 344 teachers in these 21 schools, out of whom 45% are matriculates, 46% are graduates and 9% have post-graduate qualification.

2. Among the 9500 students, 72% are boys and 28% are girls. Among the teachers, 19% of the teachers are female teachers. From IX class to X class there is a fall in the number of students of about 25% both in boys and in girls. There is a further fall in the number from X class to XI class of 13% in boys and 36% in girls.

3. The percentage of untrained teachers on the whole is 36%, while in male teachers it is 34% and in female teachers it is 44%. The percentage of untrained teachers in female matriculate teachers is much greater than that in female graduate teachers, the two percentages being 52% and 42% respectively.

4. The average annual salary inclusive of dearness and other allowances is found to be Rs. 1950 with an average length of service of 13 years in male teachers and Rs. 1660 with an average length of service of 7 years in female teachers. Generally the salary increases with improvement in qualification and with increase in the length of service. In male matriculate teachers, the annual increase in salary is about Rs. 22, while in male graduate teachers it is about Rs. 52. Generally the trained teachers are found to have longer service and greater income than the untrained teachers.

5. The average total annual income of the teacher including his income from tuition, examination and other sources is estimated at Rs. 2150. The average tuition and examination income is likely to be less than Rs. 300 per annum, while the annual income from other sources is found on the average to be Rs. 100. The average age of the teacher is 36 years. The income appears to increase with age to the extent of Rs. 35 per year, the correlation between the two being 0.66.

6. The average total annual income of the teacher's family is about Rs. 2400 and 45% of the families have their total annual income greater than the average of Rs 2400. The teacher very often is the only earning member in the family which is on an average of about 5 persons. Two-thirds of the teachers' families have 3 to 7 persons in the family, 19% of the families having only one or two persons and 13% of the families having more than seven perons in the family.

7. The number of rooms in the house of the teacher is on an average about 3½. The correlation between the income of the family and the size of the family is 0.34, the correlation between the income of the family and the number of rooms in the house is 0.35 and the correlation between the number of rooms in the house and the size of the family is 0.46. It seems that the number of rooms in the house depends more on the size of the family than on its income.

8. In about 20% of the houses of the teachers, there is no adequate water-supply and 30% of the houses have yet no flush-type lavatories. About 23% of houses have no electricity. Though 25% of the houses are owned by the teachers, the houses are generally old without modern amenities. The average number of rooms, equal to 3½, for an average size of the family of 5 persons, can be considered to be satisfactory only if the houses have all the requisite facilities of adequate water supply, good sanitation, electricity and proper ventilation, which is generally not the case.

9. When divided into per capita per month income groups, it is found that out of a total of 185 families considered, 28 *i.e.* 15% are in the first group of per capita per month income of Rs. 25 or less with an average per capita per month income of Rs. 22, 89 *i.e.* 48% are in the second group of income of Rs. 26 to Rs. 50 with an average of Rs. 35, 28 *i.e.* 15% are in the third group of income of Rs. 51 to Rs. 75 with an average of Rs. 62, 12 *i.e.* 7% are in the fourth group of income of Rs. 76 to Rs. 100 with an average of Rs. 85 and 28 *i.e.* 15% are in the fifth group of income of above Rs. 100 with an average of Rs. 135. The lower per capita per month incomes in the first two income groups are more due to the larger sizes of the family, which are on an average 7.7 in the first income group and 5.4 in the second income group, than to smaller incomes of the family.

10. Nearly 63% of the families are in the first two income groups and they spend about 50% of their income on food, 12% on rent, 13% on clothes and 9% on education. Some teachers, about 30% are not able to make the two ends meet and incur debt which on the average is of the total amount Rs. 1110, only about 5% of families having it more than Rs. 2000. The saving of the teacher, which is not large, is generally invested in the Post-Office Savings Bank or National Savings Certificates. Except in a few cases of the old Baroda State servants, there is no pension for the teacher but he has a Provident Fund.

APPENDIX

ANNUAL SALARY AND LENGTH OF SERVICE

(1) Male Matriculate Trained

Annual Salary	*Length of Service*								*Total*
	-4	*-8*	*-12*	*-16*	*-20*	*-24*	*-28*	*-32*	
-1200	–	–	–	1	–	–	–	–	1
-1400	7	12	6	–	–	–	–	2	27
-1600	–	3	10	6	5	–	–	1	25
-1800	–	–	–	2	8	1	1	–	12
-2000	–	–	–	–	1	2	3	1	7
-2200	–	–	–	–	–	–	1	2	3
-2400	–	–	–	–	–	–	–	–	–
-2600	–	–	–	–	1	–	–	–	1
-2800 and above.	–	–	–	1	–	–	–	–	1
Total	7	15	16	10	15	3	5	6	77

(2) Male Graduate Untrained.

Annual Salary	*Length of Service*									*Total*
	-4	*-8*	*-12*	*-16*	*-20*	*-24*	*-28*	*-32*	*-36*	
-1600	19	4	1	—	—	—	—	—	—	24
-1800	2	1	—	—	—	—	—	—	—	3
-2000	—	—	—	—	—	—	—	—	—	—
-2200	—	—	—	—	—	—	—	—	—	—
-2400	—	—	—	—	—	1	—	—	—	1
-2600	—	—	—	—	1	—	1	—	—	2
-2800	—	—	—	—	1	—	—	—	2	3
-3000	—	—	—	—	—	—	1	—	—	1
-3200	—	—	—	—	—	—	—	—	1	1
-3400	—	—	—	—	—	—	—	—	—	—
-3600	—	—	—	—	—	—	1	—	—	1
-3800	—	—	—	—	—	—	—	—	—	—
-4000 and above	—	—	—	—	—	1	—	—	—	1
Total	21	5	1	—	2	2	3	—	3	37

(3) Male Graduate Trained

Annual Salary	*Length of Service*									*Total*
	-4	*-8*	*-12*	*-16*	*-20*	*-24*	*-28*	*-32*	*-36*	
-1600	–	2	1	–	–	–	–	–	–	3
-1800	2	5	2	2	–	–	–	–	–	11
-2000	1	6	3	1	–	–	–	2	–	13
-2200	1	3	5	–	2	–	–	–	–	11
-2400	2	–	2	5	1	1	–	–	–	11
-2600	–	–	1	–	1	2	–	1	–	5
-2800	–	–	–	–	–	2	1	2	–	5
-3000	–	–	1	–	2	–	–	–	–	3
-3200	–	–	–	1	–	1	2	1	–	5
-3400	–	–	–	–	–	1	–	–	–	1
-3600	–	–	–	–	–	–	–	1	–	1
-3800	–	–	–	–	–	2	–	–	–	2
-4000 and above	–	–	–	1	3	2	1	1	–	8
Total	6	16	15	10	9	11	4	8	–	79

(4) Male Matriculate Untrained

Annual Salary	*Length of Service*								*Total*
	-4	*-8*	*-12*	*-16*	*-20*	*-24*	*-28*	*-32*	
-1200	6	1	–	1	1	–	–	–	9
-1400	12	7	–	–	–	–	–	–	19
-1600	–	1	–	1	–	–	2	–	4
-1800	–	–	–	–	–	1	–	–	1
-2000	–	–	–	–	–	1	–	2	3
-2200	–	1	–	–	1	–	–	1	3
-2400 and above	–	–	–	–	–	–	–	–	–
Total	18	10	–	2	2	2	2	3	39

NUMBER OF MALES AND FEMALES IN EACH GROUP ACCORDING TO COMMUNITIES

Group I (Per capita per month income Rs. 0-25)

Community	*Number of Families*	*Number of persons in families*		
		Male	*Female*	*Total*
Gujarati Hindu	18	72	76	148
Maharashtrian	9	24	36	60
Sindhi	—	—	—	—
Muslim	1	2	4	6
Christian	—	—	—	—
Parsi	—	—	—	—
Total	28	98	116	214

Group II (Per capita per month income Rs. 26-50)

Community	*Number of families*	*Number of persons in families*		
		Male	*Female*	*Total*
Gujarati Hindu	62	173	154	327
Maharashtrian	17	47	54	101
Sindhi	5	15	14	29
Muslim	1	1	3	4
Christian	3	7	8	15
Parsi	1	2	3	5
Total	89	245	236	481

Group III (Per capita per month income Rs. 51-75)

Community	*Number of families*	*Number of persons in families*		
		Male	*Female*	*Total*
Gujarati Hindu	24	57	38	95
Maharashtrian	2	2	4	6
Sindhi	—	—	—	—
Muslim	—	—	—	—
Christian	2	5	3	8
Parsi	—	—	—	—
Total	28	64	45	109

Group IV (Per capita per month income Rs. 76-100)

Community	*Number of families*	*Number of persons in families*		
		Male	*Female*	*Total*
Gujarati Hindu	7	17	15	32
Maharashtrian	3	2	6	8
Sindhi	–	–	–	–
Muslim	–	–	–	–
Christian	1	–	2	2
Parsi	1	–	1	1
Total	12	19	24	43

Group V (Per capita per month income above Rs. 100)

Community	*Number of families*	*Number of persons in the families*		
		Male	*Female*	*Toal*
Gujarati Hindu	16	16	12	28
Maharashtrian	5	5	2	7
Sindhi	1	2	1	3
Muslim	2	3	–	3
Christian	2	–	2	2
Parsi	2	–	2	2
Total	28	26	19	45

PART III

STATE OF HEALTH

The medical examination was carried out by the following panel of doctors :—

Dr. J. D. Pathak, B.SC., M.D., F.C.P.S. (Convener)
Dr. R. C. Desai, M.S.
Dr. C. P. Shah, M.D.
Dr. R. D. Pandit, M.D., F.C.P.S.
Dr. G. K. Karandikar, M.S., Ph.D.
Dr. (Mrs.) Sulochana Shah, M.B.B.S.

Several students of the Medical College, Baroda
helped at the examinations.

MEDICAL EXAMINATION OF THE TEACHERS' FAMILIES

A preliminary meeting with the teachers of each school was arranged by the Principal of the school concerned and the President of the Head Masters' Association, when the aims and objects of the survey and the methods were explained to the members of the staff. It was emphasised that the whole family was taken as a unit and therefore the entire family should be medically examined. They were called by appointment on a Saturday afternoon to Shree Sayaji General Hospital at the out-patients department, where rooms were kept specially open for their examination. If for some reason a member of the family could not attend with the rest of the members on the same day, facility was granted to examine him at a subsequent week. Inspite of appeal the entire family sometimes failed to attend for the medical examination, either due to a member being out of Baroda or being engaged for some reasons. Most of such members were either wives or daughters of the teacher.

The form used for medical examination is appended at the end. It was adopted from the one used by the Gujarat Research Soceity Surveys at Khar and Ahmedabad. The number of details inquired can be seen from it. If further investigation or treatment was necessary, the subjects were advised to attend Shree Sayaji General Hospital as indoor or outdoor patients. The families were examined once only. Such work could be better carried out by a 'Health Centre'. A health Centre attached to a hospital can, not only carry out such survey work, but it can detect disease in its early stages and thus help to preserve the health of the people. A health centre is an institution of the future. This new concept of preventive medicine is worth consideration.

The total number of teachers in the various secondary schools in Baroda was 387; 43 of these were either part time, craft, music or other teachers. From the remaining, 66 were female teachers, who were not heads of their families but served merely to supplement their family income. Examination of the families of these teachers was not insisted upon, as it would not give a true picture of the state of the teachers' families.

The remaining 278 were full-time male teachers who were the heads of their families. Medical and diet survey of these teachers was aimed at. Either due to being busy with examinations or due to the vacations intervening more families could not come as expected. In all 117 families were medically examined from January to April 1954.

Out of these 117 families examined, 16 were single member families. History of the entire family was taken and the families were said to be healthy.

INCIDENCE OF AGE AND SEX

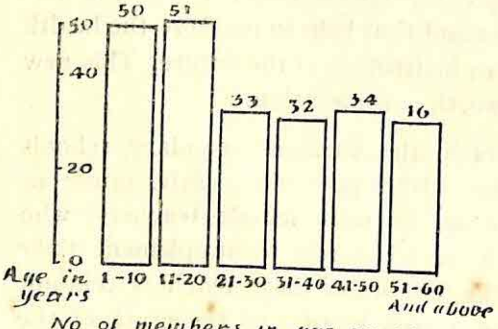
Out of the 370 members of the 117 families medically examined, 216 were males and 154 females; 16 of these were single members, having no family.

Incidence of age and sex of persons medically examined

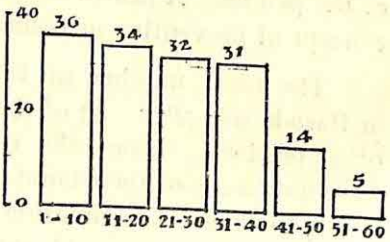
Age	*1 to 10*	*11 to 20*	*21 to 30*	*31 to 40*	*41 to 50*	*51 to 60 & above*	*Total*
Males	50	51	33	32	34	16	216
Females	36	34	33	32	14	5	154
Total	86	85	66	64	48	21	370

Of the total 370 members, 115 were adult men, 84 adult women and the remaining 171 were below the age of 20 years, 101 males and 70 females.

Almost all the members who were examined had no hobbies: nor did they play any games or take regular exercise. The school going members also did not take any regular exercise or play games besides what was being done in their schools.



No of members in age groups
MALES



No. of members in age groups
FEMALES

HEIGHT, WEIGHT AND AGE.

In the group medically examined there were 145 males and 108 females, of age above 14 years, whose heights and weights were recorded along with their ages. From these records, bivariate tables of (i) weight and age, (ii) weight and height and (iii) height and age were prepared separately for males and females. For each bivariate table have been calculated the two means, the correlation and a regression coefficient which gives the average increase in the first factor mentioned, per unit increase in the second factor. The results are given below :—

	Statistical constant	*Male*	*Female*
$\bar{w}$	Average weight	116.4	93.6
$\bar{y}$	Average age	32.6	29.3
$\bar{h}$	Average height	63.7	58.6
r_{wy}	Correlation between weight and age	0.54	0.50
r_{wh}	,, ,, weight and height	0.50	0.62
r_{hy}	,, ,, height and age	0.24	0.24
b_{wy}	Regression of weight on age	1.1	1.9
b_{wh}	,, ,, weight on height	4.8	4.1
b_{hy}	,, ,, height on age	0.05	0.05

By applying statistical methods, the partial regression coefficients $b_{wy.h}$ and $b_{wh.y}$ are calculated. These are the average increase in weight per unit increase in age when height is constant and the average increase in weight per unit increase in height when age is constant. These two partial regression coefficients are approximately 0.9 and 4.0 for males and 1.8 and 4 3 for females. It means that in males, for every year more in age than the average 32.6 years, the weight is more than the average weight 116.4 lbs. by about 1 lb. and for every inch more in height than the average height 63.7 inches, the weight is more than the average weight by 4 lbs. In symbols, we have the relation for males

$$w - 116.4 = 0.9\,(y - 32.6) + 4.0\,(h - 63.7).$$

Similar relation between the weight, age and height for the females in the group is :

$$w - 93.6 = 1.8\,(y - 29.3) + 4.3\,(h - 58.6).$$

Height ceases to grow in adults and the fact is seen in the very small values of the regression coefficient of height on age.

The average height of the males in this series is 5′ 3¾″ while that for the females is 4′10½″. The average male weight is 116 lbs. and the average female weight is 94 lbs.

The average adult male height of Gujaratis is stated to be 5′ 4½″ and is much lower than the average height of Northern Indians. **

Age in Years	† *M. S. University Students*		* *British*	
	Height (inches)	*Weight (lbs)*	*Height (inches)*	*Weight (lbs)*
16 ..	63.21	99.2	65.0	121
17 ..	63.95	102.8		
18 ..	64.27	104.0	67.0	132
19 ..	64.59	108.4		
20 ..	64.69	110.5	68.0	140
21 ..	64.69	110.7		
22 & above	64.81	112.5		

Other normals such as pulse, temperature and respirations were taken as a routine. Since these were single examinations, their analysis is not detailed out here but they guided in carrying out further medical examination of the subjects.

PAST ILLNESS

There were very few who stated they had no illness in life; 159 out of the total 370 persons medically examined stated that they had suffered in the past from some serious illness. Alimentary tract disorders —dysentery, diarrhea, typhoid—topped the list. The respiratory disorders were next in incidence :—

	No. of persons out of 370	*Percentage*
Alimentary system	53	14.4
Respiratory system	39	10.1
Tonsils, bad throats and glands	13	3.5
Genito-urinary system	16	4.4
Nervous system	13	3.5
Cardiovascular system	7	1.9
General debility	7	1.9
Eyes	2	0.6
Nose	2	0.6
Ears	3	0.8
Joints	3	0.8
Skin	1	0.3

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† Journal M S. University, Baroda Vol. 2 No. 2 (1953) pp. 127-128.

* Cruickshank E.W.H., Food and Nutrition, Livingston, Edinburgh, 1946.

** Cursetji J. J., Oriental Life Assurance Company's Tables,

COMPLAINTS

To the querry "any complaints"? the response obtained per capita income group—wise was :—

Group Number	*I*	*II*	*III*	*IV*	*V*	*Total*
Number who had complaints	34	85	26	8	22	175
Out of total number	90	176	57	9	38	370

The important complaints in order of their frequency were constipation, general debility, headache, pain in various parts of the body, joint troubles, poor appetite, other alimentary complaints, cough and breathlessness. Grouping them according to the different systems of the body, the incidence is as follows :—

System complained of	*No. of persons*	*Percentage*
Alimentary system	37	10.0
Respiratory system	24	6.6
Mouth, Throat (including Tonsils)	26	7.0
Genito urinary troubles	22	6.0
General debility	21	5.7
Joints	14	3.9
Nervous System (chiefly headache) etc.	16	4.3
Cardiovascular system	5	1.4
Ears	4	1.8
Eyes	4	1.8
Nose	2	0.9

Some persons had more than one—several complaints.

DISORDERS REVEALED IN MEDICAL EXAMINATION

The complaints and the past histories were borne in mind while carrying out their clinical examination. The disorders revealed in the course of their examination have been mentioned in the tables on pages 38 and 39.

Bad throats and tonsils were the most common findings. Proper hygiene of the mouth would be very helpful in reducing these troubles. Final diagnosis in some cases as of tuberculosis, hook worm infection, etc. which needs a detailed investigation could not be made for all suspected cases.

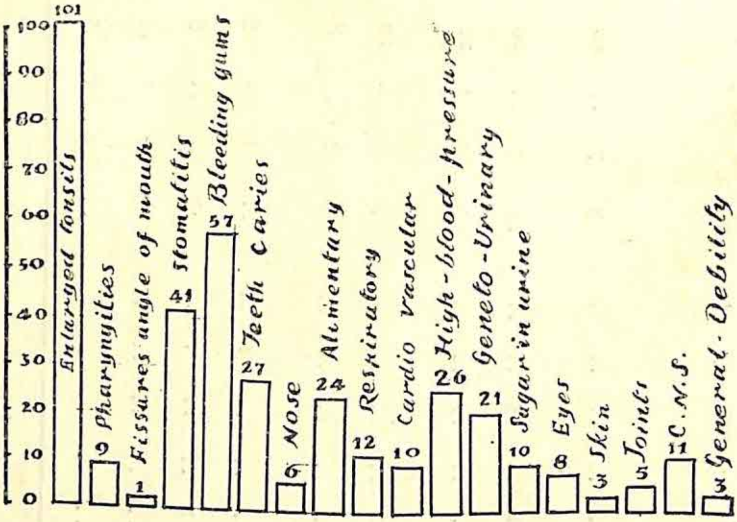
The persons were advised to be admitted or treated at Shree Sayaji General Hospital. Whether the incidence of some of these disorders is more common among the teachers than in other people is difficult to say for want of adequate data.

Incidence of disorders detected in medical examination

Economic Group	*Group I*			*Group II*			*Group III*			*Group IV*			*Group V*							
Out of Total	*M* *28*	*F* *21*	*C* *41*	*M* *72*	*F* *52*	*C* *52*	*M* *27*	*F* *19*	*C* *11*	*M* *3*	*F* *6*	*C* –	*M* *22*	*F* *13*	*C* *3*	*Males* *152*	*Females* *111*	*Children* *107*	*Total 370*	*% Total*
Mouth: E.N.T.																				
Enlarged tonsils and glands in neck.	7	4	14	11	15	25	8	3	2	..	3	..	5	1	3	31	26	44	101	27.3%
Pharyngitis	3	4	..	..	1	1	..	..	..	..	..	..	..	..	..	3	5	1	9	2.4%
Stomatitis	6	4	..	5	9	3	2	2	..	..	3	..	4	3	..	17	21	3	41	11.1%
Fissures angle of mouth.	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	0.3%
Bleeding gums (including due to pyorrhoea).	3	12	..	15	13	3	3	2	1	..	..	..	4	1	..	25	28	4	57	15.5%
Teeth caries	3	1	..	10	1	2	3	1	1	1	1	..	3	..	..	20	4	3	27	7.3%
Nose: rhinitis, septal defects.	..	1	1	1	1	..	1	1	..	..	..	..	..	..	..	2	3	1	6	1.6%
Alimentary Disorders:																				
Gastritis, ulcer, diarrhea.	6	3	2	1	4	..	3	2	..	1	..	..	2	..	..	13	9	2	24	6.5%
Respiratory System:																				
Bronchitis, cold etc.	..	1	..	2	5	..	..	2	1	..	..	..	..	..	1	2	9	1	12	3.2%

Economic Group	*Group I*			*Group II*			*Group III*			*Group IV*			*Group V*			*Males* 152	*Females* 111	*Children* 107	*Total* 370	% *Total*
Out of Total	*M* 28	*F* 21	C 41	*M* 72	*F* 52	*C* 52	*M* 27	*F* 19	*C* 11	*M* 3	*F* 6	*C* –	*M* 22	*F* 13	*C* 3					
Cardio Vascular System:																				
Cardiac failure, edema etc.	..	..	..	3	5	..	..	2	..	..	..	..	..	..	..	3	7	..	10	2.8%
High Blood Pressure:	4	..	..	6	4	..	3	2	..	1	1	..	5	..	..	19	7	..	26	7.3%
Geneto-urinary system disorder.	..	4	1	1	6	..	2	7	..	..	..	..	..	..	..	3	17	1	21	5.7%
Sugar in urine	..	..	..	1	2	1	2	3	1	..	..	..	..	..	..	3	5	2	10	2.8%
Eyes: (Errors of refraction not included).	6	2	..	..	..	..	..	..	..	..	..	..	..	..	..	6	2	..	8	2.2%
Skin : (dermatitis).	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	1	2	3	0.8%
Joints: (arthritis).	..	..	..	3	1	..	..	..	..	..	1	..	..	..	..	3	2	..	5	1.4%
C. N. S. disorders.	1	4	..	2	3	..	..	1	..	..	..	..	..	..	..	3	7	1	11	3.1%
Gross general debility	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	3	0.8%

Disorders Detected in Medical Examination



INCIDENCE OF FINDINGS

NUTRITIONAL DEFICIENCIES

The Indian Council of Medical Research recommend the following form for rapid nutrition survey.*

GRADE I — NORMAL

GRADE II —

- (a) poor musculature,
- (b) deficient subcutaneous fat
- (c) mild anaemia
- (d) lack of interest in surroundings
- (e) mild signs of not more than one specific nutritional disorder or deficiencies mentioned under grade III

GRADE III —

- (a) Gross muscular wasting :
- (b) (i) Xerosis, pigmentation of conjunctiva (ii) Bitot's spots
  (iii) Xerosis of cornea (iv) Angular conjunctivitis
- (c) Marked anaemia
- (d) (i) Red and/or raw tongue Glazed tongue Stomatitis
  (ii) Bleeding gums
- (e) Caries
- (f) Dry and/or rough skin Hyperkeratosis Crazy pavement skin
- (g) Œdema—localised or generalised
- (h) Tenderness of calf muscles
- (i) Special remarks if any :

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*Report of the Scientific Advisory Board for the year 1949, I.C.M.R., New Delhi, p. 87

Incidence of Nutritional Deficiences

	Group I			*Group II*			*Group III*			*Group IV*			*Group V*			*Male 152*	*Females 111*	*Children 107*	*Total 370*	*% Total*
Total Number	*M* 28	*F* 21	*C* 41	*M* 72	*F* 52	*C* 52	*M* 27	*F* 19	*C* 11	*M* 3	*F* 6	*C* —	*M* 22	*F* 13	*C* 3					
Mouth :—																				
Tongue, Stomatitis ..	4	5	..	8	9	3	2	1	..	..	3	..	3	3	..	17	21	3	41	11·1%
Bleeding Gums	3	7	1	6	7	1	2	1	..	..	..	..	1	1	..	12	16	2	30	8·1%
Pyorrhea	3	3	..	10	9	..	1	1	..	..	..	..	2	1	..	16	14	..	30	8·1%
Teeth, Caries	3	1	..	12	5	..	4	2	1	2	3	..	3	..	..	24	11	1	36	9·7%
Skin :—																				
Phrynodermia	..	7	4	1	13	3	2	1	2	..	2	..	1	1	..	4	25	9	38	10·3%
Nasolabial Seborrhoea ..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	0·3%
Adipose Tissue deficiency	..	3	5	7	2	2	4	2	1	..	2	..	1	..	..	12	9	8	29	7·8%
Alimentary System :—																				
Anorexia	2	1	1	4	4	1	1	2	1	..	1	..	3	..	..	10	8	3	21	5·7%
Nervous System :—																				
Calf Tenderness	..	1	..	2	1	..	..	..	..	..	..	..	..	..	..	2	2	..	4	1·1%
Lack of concentration ..	..	1	..	1	1	..	..	..	..	..	..	..	1	..	..	2	2	..	4	1·1%
Anemia (Hb. below 60%). ..	..	5	9	11	10	10	2	6	1	..	1	..	1	4	..	14	26	20	60	16·2%

This form was filled in at the time of the medical examination and the incidence of the three grades of nutritional deficiencies were worked out:

	Per capita Income group					*Total*
	I	*II*	*III*	*IV*	*V*	
Nutrition Grade I	37	97	38	3	22	197
,, II	47	73	17	5	16	158
,, III	6	6	2	1	–	15
Total no. of persons	90	176	57	9	38	370

Thus out of the 370 persons examined, 197 showed no external evidence of nutritional deficiency by this method, but 158 revealed mild deficiency signs and 15 showed signs of gross deficiency. This method though of value for a rapid survey has its fallacies. For more accurate estimate of nutritional deficiencies, laboratory and other examinations are desirable.

The nutritional deficiencies detected in the course of the survey have been separately tabulated (vide p. 41). As several defects were observed in some individuals, the percentage incidence should be read in that light. It must be admitted that all the signs enumerated in the table would not be exclusively due to nutritional deficiencies, *e. g.* pyorrhea or lack of concentration. Besides, in a hurried examination at day time, symptoms like night-blindness have to be admitted only on the subjects' statements. Keeping all such limitations in mind, the data are presented as obtained.

HÆMOGLOBIN

Examination of blood for hæmoglobin was carried out by Sahli's method (100% = 17 gms.). Most of the adults were examined for Hb, but the examination of some young children had to be left out. However, all children with clinical signs of anæmia were examined for hæmoglobin percentage. In all 291 persons were examined for Hb%. The data of adult males and females are detailed in tables on pages 43 and 44.

The Indian Standard is a little lower than that adopted by the instrument. Napier and Dasgupta* have adopted the Indian standard to be 14 gms. = 100% of hæmoglobin. Severely anæmic people were called for further investigations and offered treatment in the hospital or prescribed treatment to be taken at home.

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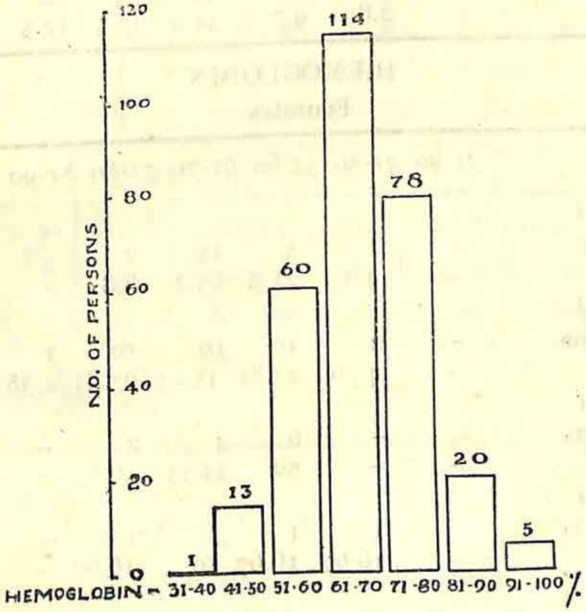
* Napier L. E. and Dasgupta C. R., Haematological Technique, Dhur & Sons Ltd., Calcutta, 1945.

Stools of all the anæmic persons could not be examined for the difficulties involved in getting samples for examinations. In some cases of severe anæmia stools were examined once only. Ova or worms were not detected in any of them.

Hæmoglobin in Percentage	11-20%	21-30%	31-40%	41-50%	51-60%	61-70	71-80%	81-90%	91-100%	Total
in Grams	1.7-3.4	3.4-5.1	5.1-6.8	6.8-8.5	8.5-10.2	10.2-11.9	11.9-13.6	13.6-15.3	15.3-17.0	
Males	—	—	—	4	14	49	54	18	5	144
Females	—	—	—	4	26	48	17	1	—	96
Children (age upto 12 years)	—	—	1	5	20	17	7	1	—	51
Total	—	—	1	13	60	114	78	20	5	291

The incidence of anæmia was higher in females than in males. None of the females had 100% hæmoglobin, a great majority had hæmoglobin between 50-80%.



All the adults who came for medical examination were examined for hæmoglobin %. Hæmoglobin estimation however, was not made in some children appearing healthy. Hence the high incidence of anæmia in the children in this series, but it is evidently an exaggerated picture.

HÆMOGLOBIN

Males

	HB%	*31-40*	*41-50*	*51-60*	*61-70*	*71-80*	*81-90*	*91-100*	*Total*
Group I	No. of persons	–	1	–	14	10	2	1	28
	%	–	3.6	–	50	35.7	7.13	3.57	100
Group II	No. of persons	–	3	11	20	26	5	2	67
	%	–	4.47	16.4	29.9	38.8	7.45	2.98	100
Group III	No. of persons	–	–	2	12	4	4	1	23
	%	–	–	8.7	52.3	17.4	17.4	4.3	100
Group IV	No. of persons	–	–	–	–	3	–	–	3
	%	–	–	–	–	100	–	–	100
Group V	No. of persons	–	–	1	3	11	7	1	23
	%	–	–	4.4	13	47.8	30.4	4.4	100
Total No. of persons		–	4	14	49	54	18	5	144
	%	–	2.8	9.7	34.0	37.5	12.5	3.5	100

HÆMOGLOBIN

Females

	HB%	*31-40*	*41-50*	*51-60*	*61-70*	*71-80*	*81-90*	*91-00*	*Total*
Group I	No. of persons	–	1	5	15	2	–	–	23
	%	–	4.3	21.7	65.2	8.8	–	–	100
Group II	No. of persons	–	2	10	19	10	1	–	42
	%	–	4.76	23.81	45.24	23.81	2.38	–	100
Group III	No. of persons	–	–	6	4	2	–	–	12
	%	–	–	50	33.33	16.67	–	–	100
Group IV	No. of persons	–	1	1	3	1	–	–	6
	%	–	16.67	16.67	50	16.67	–	–	100
Group V	No. of persons	–	–	4	7	2	–	–	13
	%	–	–	30.77	53.85	15.38	–	–	100
Total No. of persons		–	4	26	48	17	1	–	96
	%	–	4.17	27.1	50.0	17.7	1.03	–	100

BLOOD PRESSURE

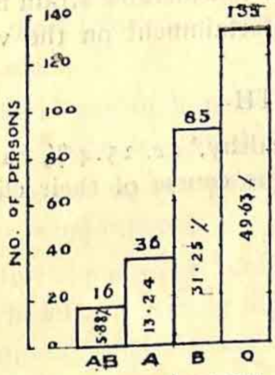
19 males and 7 females showed high arterial blood pressure readings above 160 mm. Hg. systolic and 96 mm. Hg. diastolic.

Table showing incidence of hypertension

Age in years	*10-20*	*21-30*	*31-40*	*41-50*	*51-60*	*61-70*	*Total*
Males	—	2	3	7	6	1	19
(Out of)	(50)	(51)	(33)	(32)	(34)	(16)	(216)
Females	—	—	1	3	3	—	7
(Out of)	(36)	(34)	(32)	(31)	(14)	(5)	(152)
Total	—	2	4	10	9	1	26

It may be noted that there was no case of high blood pressure in persons (children) below the age of 20 years.

BLOOD GROUPS



DISTRIBUTION OF BLOOD GROUPS IN 272 PERSONS

Blood groups of 272 persons were determined. These confirm the distribution of groups commonly found in the oriental countries. Here O and B are more frequent than A and AB is least frequent of all groups. In the Europeans A is more frequent than B.

Blood Group	*O*	*A*	*B*	*AB*	*Total*
No. of persons	135	36	85	16	272
% of total	49.63%	13.24%	31.25%	5.88%	100%
% distribution in another series in Baroda	29.2%	24.6%	36.2%	10%	100%
† Incidence in Europeans	46%	42%	9%	3%	100%

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† Samson Wright, Applied Physiology, Oxford Uni. Press, London, 1953, p. 176.

The incidence of blood groups sex-wise is detailed below:

Males

Groups	*O*	*A*	*B*	*AB*	*Total*
Actual number	78	24	51	10	163
Percentage	47.9	14.7	31.3	6.1	100

Females

Groups	*O*	*A*	*B*	*AB*	*Total*
Actual number	57	12	34	6	109
Percentage	52.3	11.0	31.2	5.5	100

EYES

Errors of refraction were common. 117 out of 370 had some defect of vision—due to errors of refraction, chiefly myopia. Such a high incidence of myopia may be the result of faulty methods of reading, studying without adequate nutrition in young age, or more likely due to too frequent visits to cinemas. It is evident that considerable strain is put by modern methods of education or entertainment on the visual apparatus.

STATUS OF HEALTH

Only 57 persons out of 370 were 'healthy,' *i.e.* 15.4 % had no serious complaint or disorder discovered in the course of their clinical examination.

SUMMARY

Out of the 278 full time male teachers who were heads of their families, medical examination of 117 families was carried out in early 1954.

Their habits were simple; very few smoked but many took tea. Regular exercise was taken by very few and practically none had any hobbies.

Their average adult height was almost the same as that for adult students of the M. S. University of Baroda. The average height for males (above 14) was 5′-3¾″ and for females (above 14) 4′-10½″. The average male weight was 116 lbs. and the average female weight was 94 lbs.

While there were several persons with gross deficiency of fat, no obese person was met with in this survey.

Amongst the disorders met with in the clinical examination, bad throats, enlarged tonsils, carious teeth, bleeding gums and stomatitis were most frequent. Next to them were digestive disturbances, coughs and colds.

Incidence of hypertension seems to be greater amongst teachers than in people of other occupations.

Anæmia was very frequent. Eyes of 117/370 were weak, the main defect being myopia.

In the nutritional deficiencies, those due to vitamin B deficiency were frequent. Except in one case of caeliac disease, signs of very gross nutritional deficiency were not found in the persons examined.

(Additions and alterations)

Page 42 : Standard Haemoglobin figures are rounded upto whole integers.

Page 45 line 3 : Please correct 96 mm. to 90 mm.

Page 45 second table : % distribution in another series in Baroda (unpublished data ; kindly supplied by Professor of Pathology, Medical College, Baroda)

PART IV

NUTRITION

DIET SURVEY

Methods :

The results of the diet survey of the families whose health examination has been covered in this report are presented here. The diet survey was carried out in late winter—February to April months for a period of one week according to the convenience of the family. The teachers were appealed to join this survey only if accurate and reliable data could be given. Hence the number of the families, whose diet has been examined, is much smaller than that of the families medically examined.

Each family was provided with a note-book in which the number and names of the members of the family with details like their age, sex, number of meals taken with the family or outside,were recorded. The number of guests, servants, if any, were also mentioned. The various articles of diet used for cooking were named in the columns. Here cereals—wheat, bajri, jowar etc. ; rice, pulses—tur, mug, val etc. ; ghee, oil, butter ; milk, curds or milk products ; meat, fish, eggs ; ground nuts, 'tal,'; sugar, jaggery ; tea ; tubers—potatoes, 'suran,' onions etc.; leafy and non-leafy vegetables and condiments of various types were separately mentioned. In most cases the stock in the house was taken before and at the end of the survey and the amount consumed was worked out by difference ; whereas in a few families the consumption of these articles from day-to-day was measured. Articles like milk and vegetables which are usually obtained from day-to-day were entered as obtained. Any food taken by any member of the family outside the kitchen was also noted. The food wasted in the plates or in the kitchens was not weighed but its approximate amount was noted. This quantity was very negligible as the families hardly permitted any waste.

The dishes cooked daily were also entered. The dishes prepared varied according to the dietetic habits of the families. In this survey there were—

Gujarati Hindu	38	families	with	184	individuals,
Maharashtrian Hindu	10	,,	with	55	,,
North Indian	1	,,	with	2	,,
Parsi	3	,,	with	7	,,
Christian	1	,,	with	7	,,
Total..	53	,,	with	255	,,

Parsi, Christian and north Indian families were very few. The results of their diet survey have been shown merely for comparison. The diet of the Gujarati and Maharashtrian families has been treated in detail.

Diet habits :

All the (Gujarati and Maharashtrian) families were vegetarians. They took a small cup of tea or in some cases milk and/or light breakfast in the morning—('bhusa,' 'ganthia,' 'bhakri' or 'puri').

Their noon meals usually taken at about 10 a.m. consisted of rice, dal or pulses, chapati and vegetables. This meal except on holidays had to be taken hurriedly, to rush to school soon after the meals.

In the afternoon many took a cup of tea occasionally with 'bhusa'.

The evening meal in some families was like the main morning meal; some had 'khichdi' with curry or vegetables; or 'bhakri' or 'bajri rotla' and vegetables. Milk when taken was usually along with the evening meal.

Various pulses or their preparations—'farsans,' 'bhajia,' 'puda' and vegetables of many types were used. This permitted a wide range of dishes to be cooked.

More varieties of dishes have been recorded by families with better income. Sweets were occasionally obtained from the market, on holidays.

All Maharashtrian families in this investigation were vegetarian. Their dietetic habits and menus were very much similar to the above. In vegetables, potatoes figured prominently. Rice with either curds or 'chhas' was insisted upon at the principal meals. 'Chatni' or 'kachumber' was also prepared very often, thus ensuring some articles taken 'green'.

Only three Parsi families were investigated. Their routine was tea with chapati in the morning. In their principal meals they took eggs, cake, chapati, potatoes, fish, vegetables, 'khichdi,' curds, dates, puddings, occasionally ice-cream and pickles.

A word regarding their methods of cooking may not be out of place. Though the point was not always investigated, the following information was noted on inquiring. Rice was washed very thoroughly before cooking ; the water in which it was boiled was many times thrown away. Siftings—bran of wheat or bajri flour were discarded. For cooking dal, pulse or vegetables, soda was employed by some. The food left over from the morning meal was reheated and served in the evening. Such methods are likely to lead to serious loss of nutrients.

It is worth while discussing some of the difficulties experienced in estimating the food values of the diets consumed by the members. From the calorie and other values it is customary to deduct 10% from the values of the total food as given to the kitchen for cooking, to account for wastage etc. It may be really doubted if it would be justified to estimate the waste at that level. The families were scrupulous in seeing that nothing was wasted.

The food values have been taken from tables given in * Health Bulletin No. 23. These values are of raw foods purchased in Coonoor. The variation in the composition of foods after cooking them is not known.

In calculating the food values of the diet of institutions like hostels, little difficulty is experienced, as all the members are usually adults belonging to the same age group. In a family there is a wide range of ages. To obviate this difficulty, for estimating the food of a family, a man value or coefficient is fixed and different coefficients are assigned to different ages. The coefficients as recommended by the § League of Nation's report were adopted here *viz* :—

Age	1-2 :	2-3 :	3-5 :	6-7 :	7-9 :	9-11 :	11-12 :	12 onwards
Coefficient	0.35	0.42	0.5	0.6	0.7	0.8	0.9	1

Woman Nursing 1.25

These coefficients are absolutely arbitrary and are perhaps true for calories only. The coefficients for other nutrients as proteins, calcium, vitamins etc. would be different as the amounts of these items to be taken at different ages do not run parallel with the caloric requirement. For instance, children need more protective foods. The technical commission of the health committee of the League of Nations† have recommended the following scales for proteins and calcium :—

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* Health Bulletin No 23, Govt. of India, New Delhi, 1951.

§ League of Nations, The Problem of Nutrition, Vol. II, 1936.

† Mottram, V. H. and George Graham, Food and Principles of Dietetics, Edward Arnold & Co., London, 1948.

Age	1-2 :	2-3 :	3-5 :	6-7 :	7-9 :	9-11 :	11-12 :		above 12		Adult
							Boy	Girl	Boy	Girl	
Coeff.	0.3	0.4	0.5	0.6	0.87	0.97	1.07	1.23	1.17	1.33	1.

Estimating thus, the values for some nutrients as proteins, calcium etc. would fall by 20—25% below the figures presented in this report.

The results were found to be more consistent with per capita income than with the total gross income of the family. The attention that a teacher could pay to his family depended upon how many mouths he had to feed, educate or look after.

It was found that many senior teachers had lower per capita income, for their pay did not increase proportionately with the increase in the size of their families.

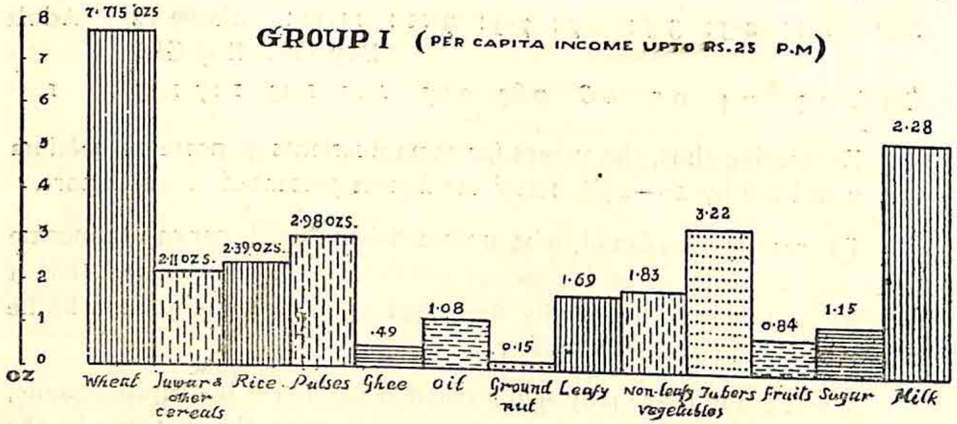
Diet Survey : No. of families and members

Income group Per capita income per month	*I* upto Rs. 25	*II* Rs. 26-50	*III* Rs. 51-75	*IV* Rs. 76-100	*V* above Rs. 100	
No. of families and (members)						
Gujaratis	6(44)	16(75)	10(44)	1(7)	5(14)	
Maharashtrians	1(10)	6(37)	—	1(3)	2(5)	
Parsis	1(5)	—	—	1(1)	1(1)	
North-Indian	—	1(2)	—	—	—	
Christian	—	1(7)	—	—	—	
Total No. of families whose diet was estimated.	8	24	10	3	8	=53
Total No. of persons in the above families.	59	121	44	11	20	=255

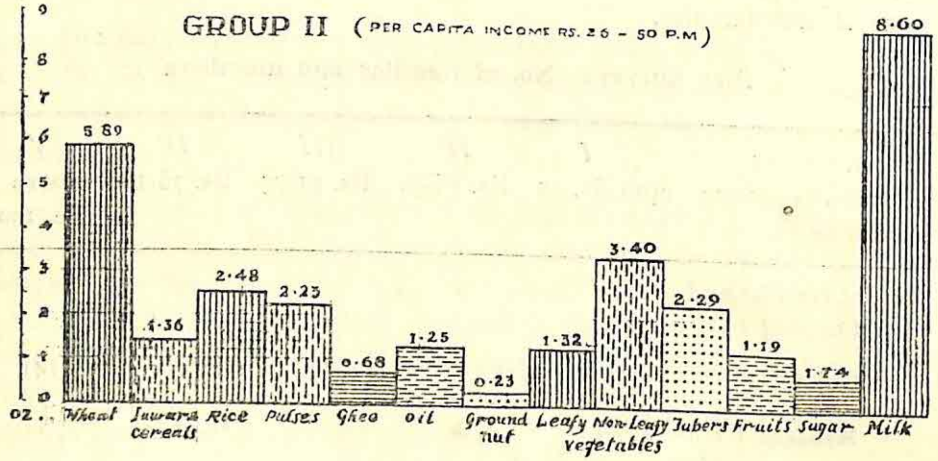
Results of Diet Survey

The results of their diet survey are presented in the subsequent pages (54-59).

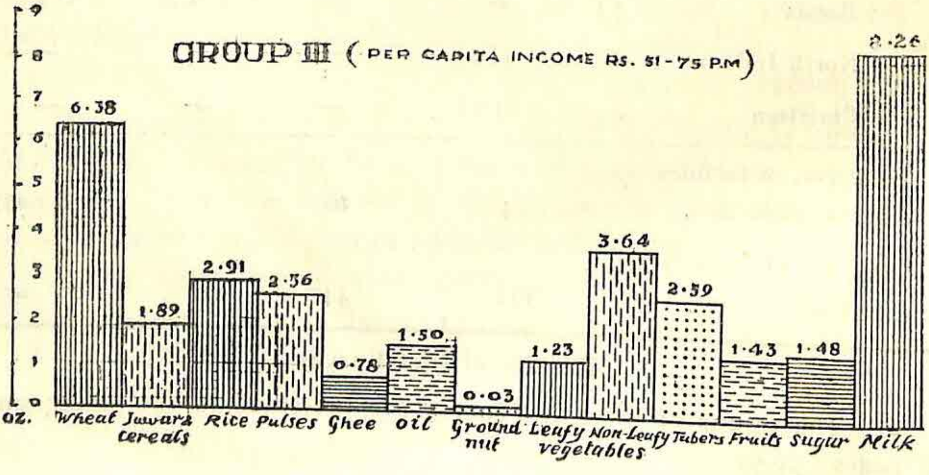
Consumption of Food in Gujarati Families in ozs. per man unit per day



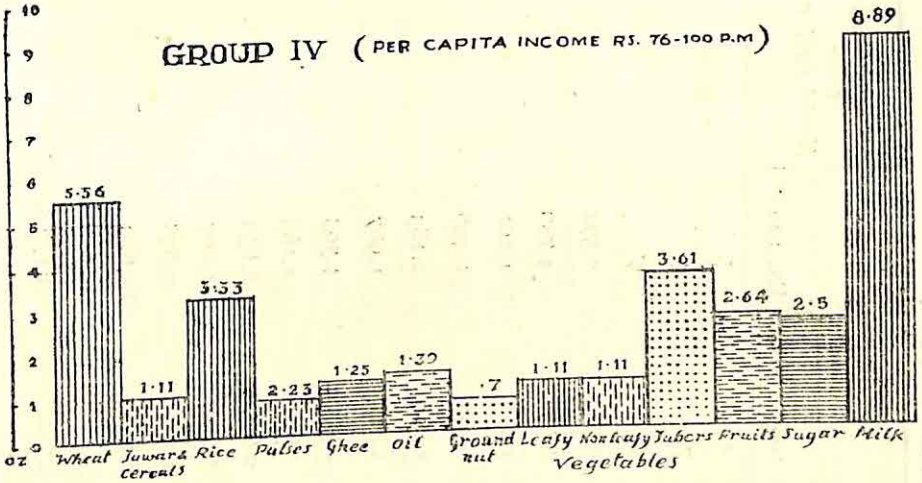
GROUP I (PER CAPITA INCOME UPTO RS.25 P.M)

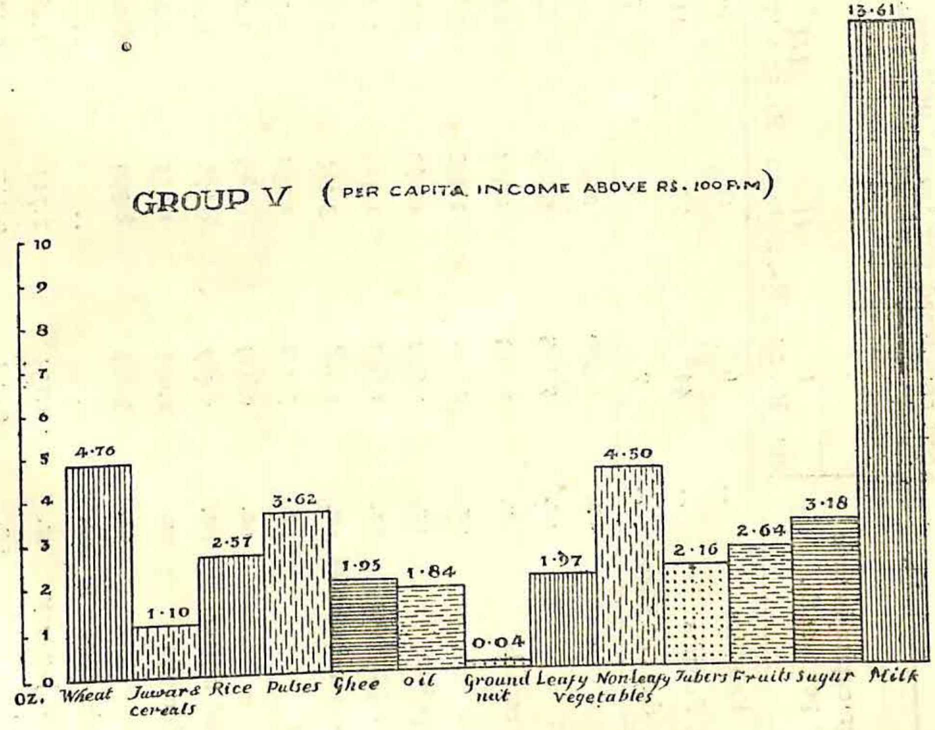


GROUP II (PER CAPITA INCOME RS. 26 - 50 P.M)



GROUP III (PER CAPITA INCOME RS. 51-75 P.M)





CONSUMPTION OF FOOD IN GUJARATI FAMILIES IN OZS. PER MAN UNIT PER DAY

Food consumed per 'man' unit per day in Gujarati families.

Per capita income per month.		*Income Group*					*Recommendations Health Bull. 23*
		I upto Rs. 25	*II* Rs. 26 to 50	*III* Rs. 51 to 75	*IV* Rs. 76 to 100	*V* above Rs. 100	
No. of Families	..	6	16	10	1	5	
No. of Persons	..	44	75	44	7	14	
No. of days of Survey	..	7	7	7	7	7	
Rice	oz.	2.386	2.48	2.907	3.333	2.571	
Wheat	oz.	7.175	5.889	6.383	5.556	4.759	
Other cereals	oz.	2.113	1.364	1.890	1.111	1.101	
Tur	oz.	2.019	1.433	1.809	0.417	1.436	
Other pulses	oz.	0.959	0.773	0.747	1.806	2.183	
Leafy vegetables	oz.	1.693	1.321	1.233	1.111	1.967	
Non-leafy vegetables.	oz.	1.828	3.404	3.643	1.111	4.503	
Tubers	oz.	3.222	2.292	2.59	3.612	2.163	
Fruits	oz.	0.839	1.185	1.425	2.635	2.635	
Ghee and butter	oz.	0.487	0.676	0.781	1.251	1.003	
Vegetable oils	oz.	1.079	1.253	1.499	1.389	1.838	
Milk	oz.	5.275	8.599	8.259	8.890	13.609	
Meat, fish, eggs	oz.	..	..	..	..	..	
Sugar and jaggery	oz.	1.154	1.743	1.48	2.502	3.178	
'Masala'	oz.	0.393	0.341	0.425	0.531	0.531	

Proteins	gm.	66.4	55.69	61.18	59.96	65.31	82
Fats	gm.	60.24	72.69	82.0	98.68	101.51	..
Carbohydrates	gm.	368.71	324.84	354 26	370.81	377.47	
Calcium	gm.	0.52	0.59	0.59	0.85	0.81	1
Phosphorus	mgm.	1399.56	1210.78	1471.34	1234.30	1428.43	
Iron	mgm.	23.3	18.77	20.70	21.15	21.80	20—30
Vitamin A	i.u.	3195.12	3547.2	3882.78	5065.95	5113.25	3000—4000
Vitamin B_1	i.u.	698.28	571.06	613.95	536.85	598.50	333—666
Riboflavin	u.gm.	644.89	817.38	815.14	897.08	1135.82	2000
Niacin	mgm.	17.12	6.38	14.92	13.55	13.09	15—23
Vitamin C	mgm.	85.81	59.40	80.81	87.41	119.98	50
Calories		2289.68	2188.55	2413.61	2621.43	2704.85	2400

Food consumed per man unit per day.

		Maharashtrians				Parsis			Christian	North-Indian
Income Group		I	II	IV	V	I	IV	V	II	II
Per capita income per month		upto Rs. 25	Rs. 26-50	Rs. 76-100	above Rs. 100	upto Rs. 25	Rs. 76-100	above Rs.100	Rs. 26 50	Rs. 26 50
Number of families		1	6	1	2	1	1	1	1	1
Number of persons		10	37	3	5	5	1	1	7	2
No. of days of survey		7	7	7	7	7	7	7	7	7
Rice	oz.	2.413	3.153	2.857	3.488	2.553	1.316	1.053	6.364	1.98
Wheat	oz.	4.444	7.034	2.449	3.772	6.809	8.605	1.842	11.365	10.526
Other cereals	oz.	4.318	1.27	1.225	..	..	..	..	..	..
Tur	oz.	1.143	1.75	2.041	1.424	0 729	..	1.579	4.546	1.711
Other pulses	oz.	0.952	1.013	0.408	1.424	..	1.053	..	0.682	1.184
Leafy vegetables	oz.	0.635	1.85	..	..	..	0.526	0.526	3.637	1.053
Non-leafy vegetables	oz.	3.048	1.85	3.266	5.125	3.408	5.789	3.947	3.637	2.895
Tubers	oz.	1.397	2.987	5 306	4.413	4.866	6.052	2.631	3.182	1.053
Fruits	oz.	1.016	0.858	4.082	..	..	3.156	..	2.728	1.105
Ghee and butter	oz.	0.508	0.6	1.225	0.783	0.426	1.053	0.739	..	1.776
Vegetable oils	oz.	0.952	1.21	0.816	1.637	1.704	2.631	2.631	0.909	..
Milk	oz.	5.906	6.504	13.878	22.7	6.809	8.868	8.868	6.819	10 526
Meat, fish eggs,	oz.	..	..	..	..	0.607	2.369	2.369	2.728	..
Sugar and jaggary	oz.	2.159	1.476	3.265	3.345	1.704	4.208	2.105	2.5	2.566
Masala	oz.	0.27	0.24	0.408	0.427	0.243	..	..	1.137	1.053

Proteins	gm.	56.67	64.49	60.17	63.76	53.57	64.06	48.19	75.00	70.48
Fats	gm.	60.25	112.40	91.48	56.71	79.66	123.84	123.58	78.89	67.74
Carbohydrates	gm.	348.97	321.64	350.29	362.8	298.55	411.46	185.87	404.37	409.56
Calcium	gm.	0.48	0.53	0.75	1.03	0.49	0.62	0.49	0.62	0.72
Phosphorus	mgm.	1348.67	1422.18	1243.21	1421 43	1150.61	1514.29	941.0	1420.20	1622.94
Iron	mgm.	16.59	22.05	16.04	18.88	16.95	21.50	11.24	26.93	26.69
Vitamin A	i.u.	2658.09	3565.52	4610.48	3676.72	1989.34	4445.21	3393.85	4357.66	6783.93
Vitamin B_1	i.u.	554.84	671.03	533 96	536.91	519.97	709 79	352.0	722.04	771.06
Riboflavin	ugm.	594.71	740.11	1257.65	1496.74	788.04	1018.19	682.08	917.85	1095.38
Niacin	mgm.	13.84	16.68	14.86	12.41	15.85	16.73	10.41	17.32	18.64
Vitamin C	mgm.	45.32	87.88	60.73	40.86	19.55	61.21	33.86	136.08	89.11
Calories		2175.85	2357.41	2480.58	2220.31	2134.39	3044.39	2074.41	2606.0	2544.89

The families surveyed were taking typical middle class vegetarian diets with the exception of the few Parsi and Christian families. The cult of vegetarianism like many other traditions in Gujarat has been handed over for centuries from generation to generation. The influence of Jain preaching of 'ahimsa' led to the acceptance of the cult of strict vegetarianism. Subsequent 'Vaishnav' influence also has been of no less importance in determining the vegetarian dietary habit of Gujaratis. Even the impact of Western civilisation and fast moving conditions of modern life have not much altered the food habits. Economics has often forced them to resort to cheaper available foods, neglecting the costlier protective foods. This is obvious from the survey of the five economic groups of the teacher's families.

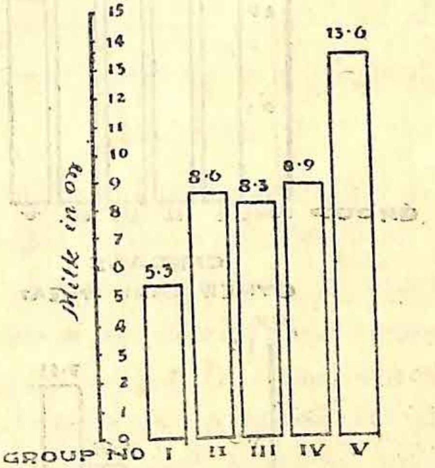
More cereals—cheaper foods—are taken by the lower income groups. Less cereals but more costly foods are being consumed as income improves. The consumption of ghee and oils, different varieties of pulses, vegetables and milk, is progressively larger in the upper income groups. With improvement in income more protective foods are taken, though it cannot be said that the money is always employed in the best way. There is scope for discretion regarding investment in more nourishing foods within the same means but this can only be possible by better knowledge regarding the nutritive values of foods. Improvement of their nutrition by the well-to-do is instinctive rather than due to any studied effort on their part or due to their knowledge of the science of nutrition.

The intake of wheat and other cereals—bajri, jowar, maize is larger in the lower income groups. Rice is, however, consumed in similar amounts by all groups. In the pulses, more 'tur' is taken by the lower income groups, whereas consumption of other pulses like 'mug,' 'val,' 'chola,' grams, has increased with income. More vegetables and fruits are taken by the upper income groups. So also sugar. But the most impressive figures are of consumption of *milk* in the various income groups.

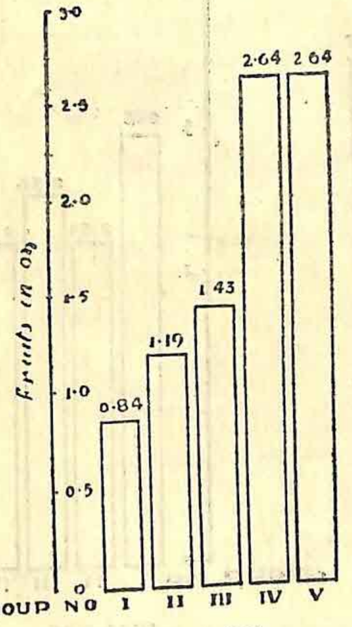
Consumption of milk either taken as milk, curds or its preparations, in oz. per man unit per day

Income group	*I*	*II*	*III*	*IV*	*V*
Gujarati families	5.275	8.599	8.259	8.890	13.609
Maharashtrian families	5.906	6.504	—	13.878	22.7

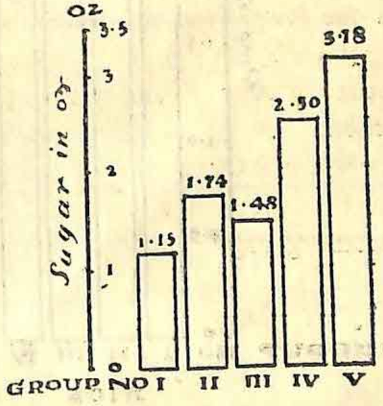
Nutrition is closely related to the economic condition of the families. Milk, fruits, vegetables, sugar—more costly articles than cereals —are taken in better amounts as the purchasing power of the family improves.



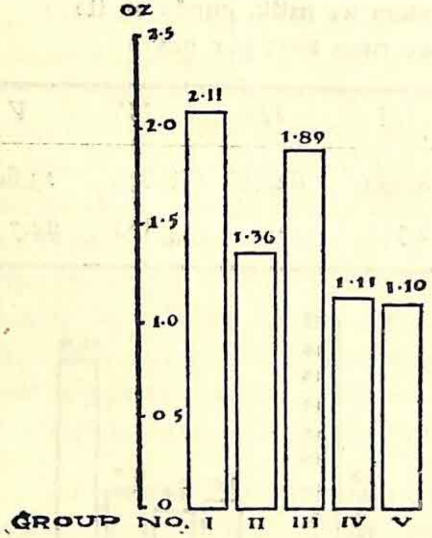
MILK



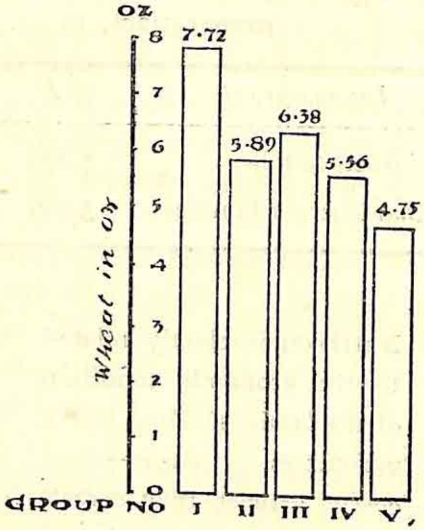
FRUITS



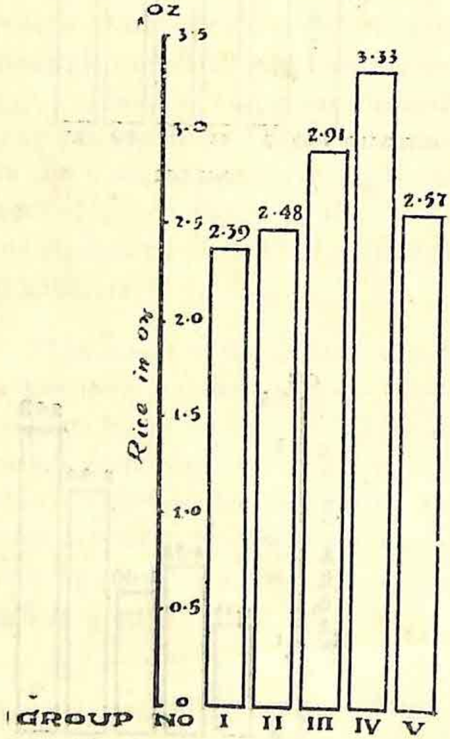
SUGAR



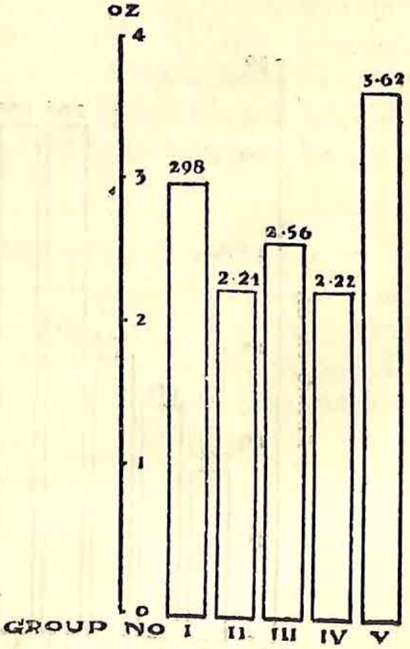
CEREALS
OTHER THAN WHEAT



WHEAT



RICE

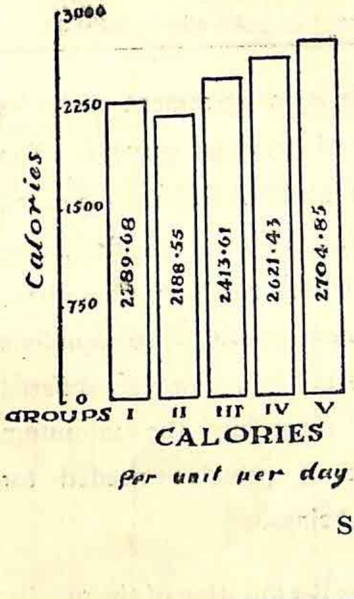


PULSES
IN OZ PER UNIT PER DAY

The recommendations of the Nutrition Advisory Committee, Indian Research Fund Association,* 1944, for an average Indian are:

	Net calories	*Proteins*	*Calcium*	*Iron*	*Vitamin* A	B	C
		gm.	*gm.*	*mg.*	*i.u.*	*i.u.*	*mgm.*
Light or sedentary work	2400	82	1	20-30	3000	333-666	50
Moderate work	3000	82	1	20-30	4000	333-666	50

The nutritional value of the diets may be reviewed in a little detail.



CALORIES

Per unit per day

CALORIES

The calories per man value per day have ranged from approximately 2200 to 2700. Distinct improvement in caloric intake can be seen with the rise in income. The poorer families derive their calories mainly from cereals and pulses. The improvement in caloric intake of upper income groups is due to higher consumption of fats.

Sources of Calories

(Gujaratis)

Income groups	*I*	*II*	*III*	*IV*	*V*
% from proteins	11	10.2	10.1	9 2	9.6
% from fats	26	33.6	33.9	36.9	38 2
% from carbohydrates	63	56 2	56,0	53 9	52.2

(Maharashtrians)

Income groups	*I*	*II*	*III*	*IV*	*V*
% from proteins	10.4	10	—	9.6	11.0
% from fats	27.8	41.7	—	38.1	32.2
% from carbohydrates	61.8	48.3	—	52.3	56.8

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* Health Bulletin No 23, Government of India, New Delhi, 1951.

PROTEINS

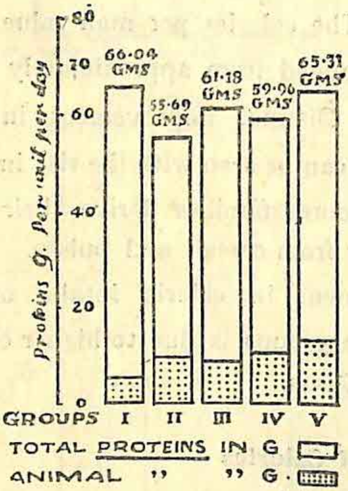
The average consumption of proteins in the various families was from 55-65 gms. per man unit per day.

(Gujaratis.)

Income groups	*I*	*II*	*III*	*IV*	*V*
Total protein gms.	66.04	55.69	61.18	59.96	65.31
Animal protein gms.	4.75	7.74	7.43	8.00	12.45

(Maharastrians)

Income groups	*I*	*II*	*III*	*IV*	*V*
Total protein gms.	56.67	64.49	—	60.17	63.76
Animal protein gms.	5.32	5.85	—	12.49	20.43



This is in agreement with the results of previous surveys. The protein intake of Gujaratis is much less than the recommendation of the Nutrition Advisory Committee mentioned above. The opinions of experts have, however, differed widely regarding the minimum amount of proteins needed for human beings.

More important than the mere quantity is the question of the quality of the proteins consumed. The proteins derived from cereals, vegetable foods—are held to be inferior in their suitability for being digested and absorbed or utilised by the body. The consensus of opinion is that not less than 20 gms. of proteins should be derived from animal sources. The consumption of milk—the only source of animal proteins in vegetarian diet—is low. Only the diet of income group V of this survey comes very near to this minimum recommendation. The first group gets only 5 gms. of animal proteins per day. If the other units recommended by the League of Nations Committee for calculations of protein and calcium were adopted, the figure would be even less. Unless more milk and milk products are included in vegetarian diets, this requirement of animal proteins cannot be fulfilled.

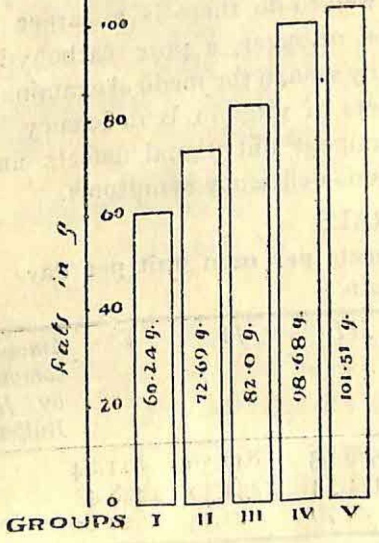
This is not due to the families having any apathy for milk nor due to their ignorance of its importance in nutrition. The first two groups (upto Rs. 50 per capita income), which are in debt, take meagre quantities of milk. In the fourth group, which is free from debts, the milk intake is much larger than that in the groups with a deficit budget. These low intakes at growing ages tell their tale by permanently preventing the attainment of full physical and intellectual development of an individual.

FATS

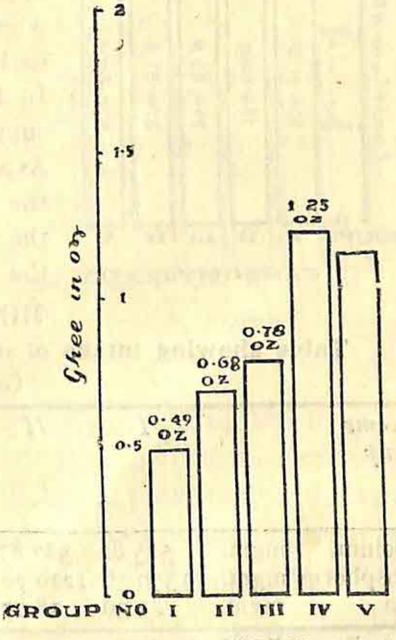
The intake of fats is closely related to income. More fats are taken by the upper income groups.

Table showing intake of fats in various income groups
(Gujaratis)

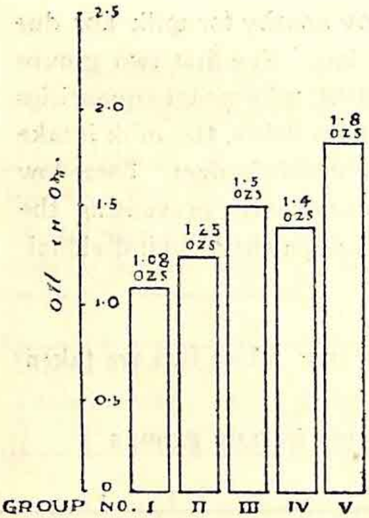
Income groups		*I*	*II*	*III*	*IV*	*V*
Fat from ghee	gms.	13.83	19.20	22.18	35.53	28.49
Fat from oil	gms.	30.65	35.59	42.57	39.45	52.20
Fat from other sources	gms.	15.76	17.90	17.25	23.70	20.82
Total fats in gms.		60.24	72.69	82.00	98.68	101.51



FAT



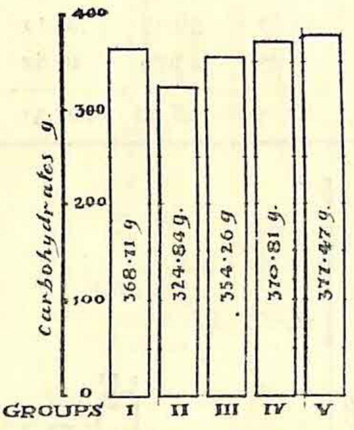
GHEE



OIL

Vegetable oils do not contain vitamins A and D, which the pure ghee or animal fats possess. At present the use of 'dalda' has become increasingly popular. This is often used for adulterating ghee or butter. Patwardhan * has pointed out the deteriorating effects of vegetable oils on vitamin A content of pure ghee when mixed with oil or vegetable ghee. He has also drawn attention to the depressent action of taking more fats along with the protein-poor cereal diets.

CARBOHYDRATES



CARBOHYDRATES

Carbohydrates are adequately consumed. The starchy foods are as a rule cheaper than the protein or fat foods. These increase the need for taking more vitamins of B group. The marginal intake of B, thus, when forming part of a preponderating carbohydrate dietary, becomes inadequate. In the well-to-do there is a larger consumption of sugar, a pure carbohydrate. As already seen in the medical examination, the effects of vitamin B deficiency were the prominent nutritional defects among the various deficiency symptoms.

MINERALS

Table showing intake of minerals per man unit per day.
(Gujaratis)

Income group	*I*	*II*	*III*	*IV*	*V*	*Amount recommended by Health Bulletin 23*
Calcium. mgm.	525.82	587.87	588.93	847.36	811.84	1000
Phosphorus mgm.	1399.56	1210.78	1471.34	1234.30	1428.43	
Iron mgm.	23.30	18.77	20.70	21.15	21.80	20–30

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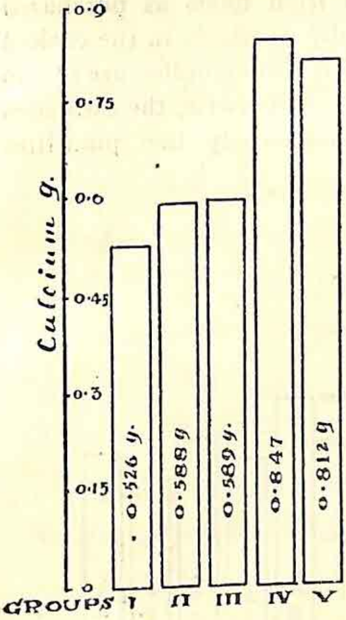
* Patwardhan V. N., Nutrition in India, Jour. Ind. Med. Sciences, Bombay, 1952.



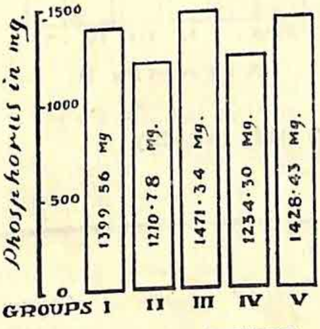
CALCIUM

The calcium intake of all the groups is unsatisfactory. According to Sherman* 0.8 gm. of calcium should be taken by all adults and 1.5 gms. or more by pregnant or nursing women. The Health Bulletin No. 23 recommends 1 gm. per day.

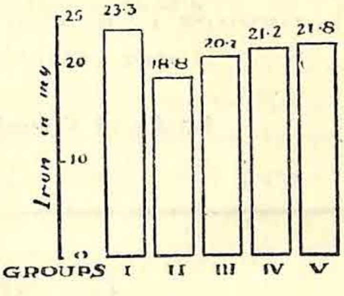
Besides, the calcium taken by these groups has been derived from vegetarian sources—calcium of which is less 'available' than from milk or eggs.

Calcium is also obtained by the persons surveyed from hard water and 'pan'. The amount so consumed could not be estimated. This unaccounted amount may slightly improve the figure of the calcium intake of the families. Even then, this factor of calcium deficiency needs utmost attention.

Phosphorus and iron intakes are adequate. Here also it may be recalled that the iron is derived mainly from vegetarian sources, which is less 'available'. The figures for iron intake cannot be compromised with the results of the medical survey. Anæmia was a common finding in the medical examination. The poor hæmoglobin percentage is possibly due to factors other than iron intake. Low protein intake, malaria and improper care of woman in days following delivery may account for the common occurrence of anæmia in them.



PHOSPHORUS



IRON

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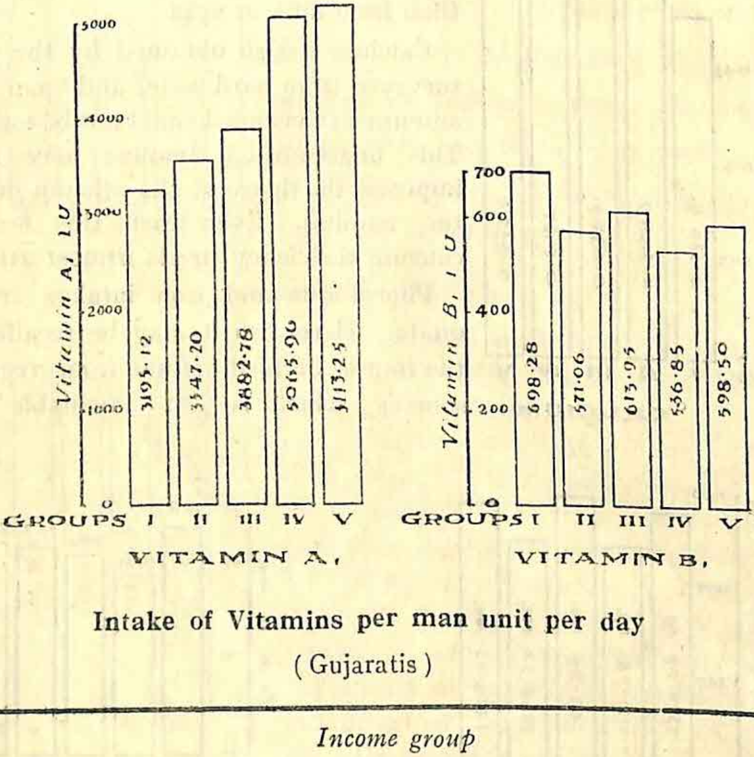
* Sherman H. C., Food and Health, Macmillan and Co., New York, 1948.

VITAMINS

Vitamin B_1 and vitamin C as estimated from foods as purchased give very little idea of how much is actually available in the cooked dishes. The methods of cooking employed by the families are apt to render a fair amount of these vitamins inert. Otherwise, the estimates of these vitamins indicate that the amounts satisfy the quantities recommended.



VITAMIN A. VITAMIN B.

Intake of Vitamins per man unit per day

(Gujaratis)

	Income group					
	I	*II*	*III*	*IV*	*V*	*Amount recommended by Health Bulletin 23*
Vitamin A I.U.	3195.12	3547.20	3882.78	5065.96	5113.25	3000-4000
Vitamin B_1 I.U.	698.28	571.06	613.95	536.85	598.50	333-666
Riboflavin ugm.	664.89	817.38	815.14	897.07	1135.82	2000
Niacin mgm.	17.12	6.38	14.92	13.55	13.09	15-23
Vitamin C mgm.	85.81	59.40	80.81	87.41	119.98	50

SUMMARY

This survey indicates that the nutrition of the families of the teachers is closely related to their income. As the income per capita improves, more protective foods—milk, vegetables and ghee are consumed.

However, it is felt that with better knowledge of the nutritive values of foods, still further improvement in nutrition could be had in the same budget.

Calories are adequate for persons of sedentary occupation.

The total quantity of proteins is a little below the recommended amounts. Animal proteins are still more inadequate.

Fats are adequately taken. The money spent on fats by the upper income groups could be better invested on protein foods.

Calcium intake is far from satisfactory.

Vitamin values, as estimated of the raw foods used for cooking are adequate. It is felt, however, that a considerable fraction of the vitamins must be being rendered inert by the methods of cooking employed by the family.

More milk or skimmed milk or skimmed milk powder, or cheese would correct the deficiency of the animal proteins. A larger intake of pulses, groundnuts, til, yeast and skimmed milk powder, would correct most of the deficiencies of the diet of the families without upsetting their budgets. The costlier vegetables could be substituted by cheaper leafy vegetables with advantage.

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

Inquiry into the Economic Condition and the State of Health and Nutrition of the Families of the Secondary School Teachers of Baroda.

FORM I

Reference No. :
Name of the Teacher ;
(Beginning with Surname)
School :
Home Address :

Status in School :
Total No. of years of service as a teacher :
Annual Salary (Total) :
Tuition and Examination Income :
Other Income :
Total Annual Income of the teacher :
Total Annual Income of the family :

Details of the Family

		Name	Relationship with the teacher	Age in completed years	Sex	Education	Occupation	Income per year	Remarks.
Staying with the teacher	1	Teacher							
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Not staying with the teacher	1								
	2								
	3								
	4								
	5								

Housing Condition :

No. of persons in the family :
Location of the house :
Nature of building : Chawl—Flat : No of Rooms and size :
Ventilation : Poor/fair/good :
No. of windows and size :
Electric Light : Yes/no :
Type of lavatory :- Flush/Ordinary : No. of persons using it :
Water supply : Adequate/Inadequate : Independent/Shared :
Rent per month if staying in hired house :

Expenditure on :

A (Monthly)

Food ;
Fuel and lighting :
Rent :
Clothes :
Recreation :
Transport and travel : Local Outside
Education :
Medicine :
Other items :

B (Annual)

Taxes (if any) :
Payment to dependents :
Interest on debt : Amount of Total Debt :
Miscellaneous :
Religious ceremonies :
Social functions like wedding etc. :

C Total Savings :

How invested : Rate of interest :

General

Special factors which affect
Expenditure
Health :
Mental Ease :

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FORM II

Part I

Date of Examination :

Family No. : *School :*

Name :

Relation with teacher :

Age : Sex : Occupation :

Family History :

Past History :

1 Repeated colds : 2 Malaria : 3 Rheumatic pains : 4 Asthma/Urticaria/Eczema :
5 Enteric fevers : 6 Dysentery 7 Any other illness.

Inoculations : Small pox : Diphtheria : Whooping cough : T.A.B.: Cholera : Plague : Others.

Details of major injuries :

Surgical operations :

Habits : Tea/Coffee (no. of cups) per day Alcohol yes/no Tobacco yes/no ○Pan/Sopari yes/no

Physical exercise : Games :

Present complaints :

Physical Measurements :

Height : Chest : Inspired /expired Abdomen :
Weight :
Pulse rate : Respirations p. m. Temperature :

General appearance : looks......years old,

Build Obesity

Subcutaneous fat. Emaciation.

Musculature : poor / fair / good

Skin : colour freckles / spots
Dry wet moist fissures :

Hair : over the body : colour ;
over the head : Baldness : type of hair : waivy,/fine/thick/sparse.

Nails : colour, dry, : fissures, shape

Veins : Normal/Prominent.

Lymph glands

Bones : Joints

Eyes : Conjunctiva colour Dry/moist xerosis,
Iris-colour Cornea Pupil steady/nystagmus,
Vision (refraction) R. E. L. E. colour blindness.

Ears : Hearing	Discharge	Wax
Nose : m. m.	Turbinates	Septal deviation
Mouth : Gums	Teeth : caries,	regular, irregular, small, large
Tongue, small, large;	colour :	smooth, fissures, ulcers,
Lips : small ,,	thick	colour
Throat;	Tonsils	Adenoids
Voice :	Speech defects :	
Gastrointestinal System : Bowels	Appetite Bleeding per rectum.	Flatulence
Tender areas	Liver	Spleen.
Respiratory System Pain	Cough	Sputum
Lungs		
Cardiovascular System : Heart Sounds	Palpitations Blood Pressure	Pain Systolic Diastolic
Urogenital : Phimosis Venereal diseases,	No of pregnancies Discharge.	Abortions
Nervous System : Headache	Memory	
Laboratory Findings :		
Blood group	*Hæmoglobin (Sahli)*	
Urine *Albumin*	*Sugar*	

Part II

GRADE I — NORMAL

GRADE II — underweight upto 20% , overweight

- (a) poor musculature,
- (b) deficient snbcutaneous fat
- (c) mild anaemia
- (d) lack of interest in surroundings
- (e) mild signs of not more than one specific nutritional disorder or deficiencies mentioned under grade III

GRADE III — underweight below 20%.

- (a) Gross muscular wasting :
- (b) (i) Xerosis, pigmentation of conjunctiva (ii) Bitots spots
  (iii) Xerosis of cornea (iv) Angular conjunctivites
- (c) Marked anaemia
- (d) (i) Red and/or raw tongue Glazed tongue Stomatitis
  (ii) Bleeding gums.
- (e) Caries
- (f) Dry and/or rough skin Hyperkeratosis Crazy pavement skin
- (g) Œdema—localised or generalised
- (h) Tenderness of calf muscles.
- (i) Special remarks if any :

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